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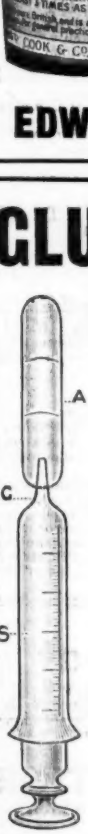

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An Address ON RENAL FUNCTION:

A DETERMINATION OF ITS DEGREE.

Being the Opening Address at a meeting of the Medical Society of London on Oct. 25th, 1920,

BY J. B. LEATHES, M.B., B.CH. OXON., F.R.S.,

DEAN OF THE FACULTY OF MEDICINE AND PROFESSOR OF PHYSIOLOGY AT THE UNIVERSITY OF SHEFFIELD.

THE EXCRETORY FUNCTION OF THE KIDNEY.

To test the performance of an organ in the body the first thing necessary is to define the duties that it has to perform. In the case of the kidney three duties, equally essential, are carried out in health with a precision that is marvellous. The most obvious of these, the removal of nitrogenous waste, the excretory function, has most frequently been made the subject of tests. This is naturally so, since the culmination of the evils resulting from disordered action of the kidney is uræmia. The name uræmia begs the question as to how it is to be understood, but most investigators agree that the tests carried out on the excretory performance of the kidney are at least successful in giving warning of the approach of this condition. The methods of estimating the amount in the blood of the best-known substances excreted in the urine have been in recent years so much improved, especially by the great master of technique Folin, that anyone who wishes and has the patience can say whether urea, ammonia, uric acid, or creatinine is present in the blood in larger quantity than is found when the kidneys are working normally. And while for each of these substances advocates may be found who hold that it, rather than the others, is the surest guide in the valuation of the kidney's work, there is probably more agreement on the significance of a rising amount of nitrogen in all forms other than that of proteins, than on the significance of any information with which the laboratory can supply the physician.

But surer means of recognising approaching danger of uræmia are not all that the physician requires. Tests are needed that would tell not merely whether death may be at hand, but whether prolonged and active life is possible; the claims made for the methods of examining excretory power devised by L. Ambard and by T. Addis and C. K. Watanabe, and the estimation of diastase, have not yet been established by sufficiently extended experience. Another side of the excretory function, the removal of substances foreign to the blood, is made use of in Schlayer's tests with iodide and lactose and in the employment of Abel's phenol sulphophthalein. Schlayer's tests promised him more than they have performed for others; Abel's phthalein test appears to perform more than it could possibly promise. The former were overweighted with interpretation; the latter is capable of none.

REGULATORY FUNCTIONS.

In addition to the excretory functions of the kidney there are the two important regulatory functions, by which the osmotic pressure and reaction of the blood are maintained at so remarkably constant a value. These functions are, it seems to me, not given sufficient prominence in the ordinary accounts of what the body owes to the kidney. Let us take first the regulation of osmotic pressure, without going into the phylogenetic significance of this constant—for the fascinating hypothesis that the osmotic pressure of the blood is that of the sea at that period in the history of the earth when the higher vertebrates developed the power of maintaining a fixed and constant osmotic pressure in the fluids bathing their cells, a hypothesis which would put back the date of the evolution of this function to a time when the amount of salt in ocean water was little more than a quarter of what it is now, must remain a hypothesis: yet nothing is more calculated to impress the mind with the vastness of the unknown number of millions of years through which the evolution of an organ such as the kidney has been going on: a wholesome corrective for the ambitious phantasy that the secrets buried behind this history are to be laid bare in a lifetime. There is no more remarkable adjustment in the body, and the work is the kidney's entirely. Other organs may do what they please with the water-supply of the body. Many hundreds of cubic centimetres may be given off by the skin in an hour or two; the amount lost with the air breathed varies from hour to hour, not only with the depth and frequency of respiration, but with the degree of saturation and temperature of the air; and at times there may be unexpected outpourings from the bowel or stomach, not to mention irregularities in the matter of drinking that must in some cases be equally unaccountable to the kidney, and yet the adjustment is maintained; in the normal day of a normal individual the kidney may be called upon to do its excretory work with half or even one-third of the average allowance of water, or be required to turn out ten times the average amount in an hour; so that the volume of an hour's urine may be anything from 20 to 600 c.cm. without any corresponding variation in the output of salts or other solids. It is no wonder that such a performance as this should become impossible at times, and that it has been the practice of many physicians to gauge the powers of the kidney by calling on it to show what it can do when the osmotic pressure of the blood is made to fall or rise.

Water tests in one form or another are among the most common functional tests in the study of nephritis, and since the osmotic pressure of the blood, as of its precambrian archetype the ocean water of that age, is mainly due to sodium chloride, tests of its capacity to deal with unusual amounts of this salt are also in common use. In the interpretation of the results obtained it is difficult to evade the need for some hypothesis as to how this work is done, and as to the rôle played by the several parts, glomerulus and tubule in its different forms, of which the renal element common to vertebrate animals consists. And so long as there can be no clear unanimity as to the working of these several parts the interpretation can only be imperfect.

THE REACTION OF THE BLOOD.

Lastly, there is the third function of the kidney, the regulation of that other and no less striking constant of the blood, the reaction. The constancy of the reaction, which has become evident only with the perfection of methods for measuring it during the last quarter of a century, is continuously threatened by the essential nature of the processes of metabolism. The oxidation of 100 g. of protein containing 1 per cent. of sulphur gives rise to 3 g. of sulphuric acid, 1·7 c.cm. of oil of vitriol, or about 600 c.cm. of decinormal acid daily. On the other hand, there is a variable quantity of fixed bases in the ash of the vegetable components of the diet, which, though we may be justified in averaging it up to about the equivalent amount of decinormal alkali, actually has very greatly different values at different times, according to customary variations in diet. Yet the adjustment is such that the changes in the reaction of the blood, which must be the stimulus to the kidney causing the variations in reaction of urine from hour to hour and from moment to moment, are so minute as to fall within the limits of error of the finest methods now available, methods which have a delicacy undreamt of a quarter of a century ago. In carrying out this function the kidney is assisted by the respiratory centre eliminating carbonic acid, by far the most abundant acid substance produced in metabolism. But even so, vagaries are allowed to the respiratory centre for which the kidney has to compensate, and the kidney remains the sheet-anchor of security for the reaction of the blood.

Need of Further Clinical Experiments.

Tests dealing with this side of the work of the kidney have not been applied to the study of its diseases except by Henderson and Palmer, who showed that the urine in nephritis tended to be more acid, and obtained other evidence of acidosis. The latter, they

think, may be of renal origin, inasmuch as the amount of ammonia used to neutralise acid in the urine is abnormally low. But the diagnostic value of their findings has not, I believe, been very fully worked out. Now the value of tests of renal efficiency in the practice of medicine is capable of assessment only by clinical experience. One test may appear theoretically much more fundamental and crucial than another, and yet be found in actual practice to give information that is less reliable and more equivocal. So long as our knowledge of how the kidney's work is done remains as incomplete as it is at present, it would be a mistake to prejudge the relative values of a test based on the rate of removal of a substance like phenol sulphophthalein, with no physiological significance, and a test which appears to strike at the very root of the kidney's work, like some form of the water test. So long, too, as the pathological changes, complex and varying as they are histologically, remain so difficult to correlate with the functional disturbances which accompany them, there must be more need for clinical experiment, and little need for speculative theory. That being so, I am consoled in that my own shortcomings due to lack of clinical experience and its resultant knowledge, though they could nowhere be more conspicuous than here, could nowhere be more completely made good by other contributors to this discussion.

My experience was obtained in two and a half years during the war, when by the kindness of Colonel Connell, commanding the 3rd Northern General Hospital, the cases of nephritis that occurred in that unit were collected in a branch hospital within a short distance of the University laboratories, and I was given the opportunity of studying and treating them. Orderlies were selected for the important work of collecting and preserving the specimens and to help in other ways. One of these orderlies (before the war a student of the University) helped me in the laboratory throughout the two and a half years, carrying out many hundreds of estimations of chlorides and of nitrogen; for the latter part of the time he lived in the hospital and attended to the collecting and measuring of specimens. This enabled me to collect a large number of data on the response of the kidney to the tests that I employed. The great majority of these were a kind of water test that I have described elsewhere,[1] in which, in addition to the measurement of the diuresis the reaction of the urine was determined during two periods before and four periods after the drinking of 500 c.cm. of water, the patients being kept in bed and not allowed to eat or drink anything else till the six specimens of urine had been obtained.

THE DIURETIC ALKALINITY TEST.

This test was designed to test the behaviour of the kidney in respect of its two regulatory functions referred to above. Tests carried out in the same way on normal subjects showed that the reaction of the urine exhibited a remarkable and constant variation during the hours for which the urine was examined, becoming alkaline sometimes in the hour before, sometimes immediately after, drinking the water at 8 o'clock. The hourly volume of urine was, of course, greatly increased, and one or two hours after the water was taken amounted to six or eight times the volume passed per hour previously. Now any diuresis tends to be accompanied by a diminution in the acidity of the urine. That the diuresis was, however, not the cause of the change in the reaction of the urine in these conditions was shown by experiments in which, with normal subjects, the amount of water taken was reduced to 250 and 100 c.cm., with corresponding reduction of the diuretic response, but no diminution in the change of the reaction of the urine. An alkaline tide normal for this time of day was found to exist, and reasons were given and experiments described which pointed to an increased activity of the respiratory centre in eliminating carbonic acid as the explanation of the less acid reaction of the urine in the forenoon after the night's rest. In the patients suffering or recovering from nephritis, response to the test varied: either it was exactly that of a normal person, or it might show (*a*) no diuresis or no alkaline tide; (*b*) either of these abnormalities by itself; or (*c*) both together.

The cases clinically most seriously affected almost always showed both abnormalities; at the first test in a few instances they showed one without the other, but more commonly both; subsequently they showed only one, and in that case generally, though not always, diuretic response was recovered before the alkaline tide; when both abnormalities had disappeared recovery was clinically fairly complete. Altogether the test was used some 330 times on 155 patients, in many cases only once, in nearly half of them more than once, in about 20 four or five times. The cases in group VI. were nearly all of them passing altered blood, most of it in the form of casts; so long as this took place they remained in group VI. For instance, a man seen first on May 27th, 1918, the thirteenth day of illness, whose urine contained no dissolved blood pigment, but on boiling gave a brown coagulum amounting to about 5 per cent. of the column of urine after standing for 24 hours, and for eight or nine weeks continued to do so in some degree daily, was tested on June 14th and July 8th and 29th; on each occasion he reacted in group VI. without diuresis and without alkaline tide. After seven weeks at an auxiliary hospital in the country on Sept. 5th he reacted in group III. with a normal alkaline tide but a subnormal diuresis, and on Oct. 1st in group II. a nearly normal reaction, never having given, during the five weeks since he returned to Sheffield, more than a trace of sedimented coagulum barely tinged with blood pigment. He could then get about fairly well, but was still short of breath on exertion. There had been no evidence of fresh hæmorrhage since he was under observation—that is to say, no dissolved blood-pigment could ever be detected with the spectroscope, excepting on one occasion faintly in a layer 60 mm. thick.

As a test, then, of the power of the kidney to secrete an acid urine the result was to show no impairment in any of the cases; the abnormality was that the urine was acid when in normal conditions it should be alkaline. Therefore the tendency to dyspnœa common in this type of case could hardly be ascribed to failure of the kidney to remove acid, although it might not be removing it as fast as was required.

THE PHOSPHATE CONTENT.

Now the acid urine which a normal subject, no less than every case of nephritis examined, passes during the evening and night, differs from the more alkaline urine of the morning, in that it contains much more phosphate. There are experiments that seem to show that the excretion of phosphate tends to render the urine acid. Trevan[2] obtained alkaline urine on perfusion of the frog's kidney with Ringer's solution, but an acid urine when a phosphate solution of the same reaction as the Ringer's fluid was perfused; and Dr. H. C. Broadhurst and I have found that, while in the diuresis induced in cats by venous injections of Ringer's solution the urine was alkaline, in that following injection of phosphate solution of about the same reaction as the blood it was acid. But the results of the estimation of phosphate in more than a hundred of the water tests in this series, which are summarised in the following table, show that the phosphate excretion in none of the groups was essentially different from that of normal subjects treated in the same way.

Ratio of Hourly Output at Time of Maximum Diuresis to Hourly Output during Night.

—	Alkalinity.	Water.	NaCl.	Total N.	P_2O_5.
	Per cent.				
In normal subject ...	80	6·5	2·23	1·80	0·50
In nephritis—					
Group I., 17 cases ...	84	8·4	2·96	1·29	0·75
" II., 23 " ...	73	3·8	2·38	1·55	0·60
" III., 20 " ...	74	3·2	2·86	1·42	0·63
" V., 15 " ...	42	4·1	2·56	1·57	0·73
" VI., 31 " ...	36	1·8	1·92	1·24	0·68

A PHENOMENON ACCOMPANYING THE DIURETIC FLOOD.

It is notable that in all subjects examined, normal and nephritic alike, the diuretic flood was accompanied by

[1] Brit. Med. Jour., 1919, ii., 165.

[2] Trevan: Jour. of Physiol., 1916, l., 15.

an increased output of sodium chloride and of nitrogen, as would be expected, but by a diminished output of phosphate in cases in which the urine remained acid no less than in those showing the normal alkaline tide. This is an indication of a tide in the output of phosphate, which was evident also in the experiments published in 1908 by E. P. Cathcart, E. L. Kennaway, and myself,[3] where in different subjects, on a constant and uniform diet, the rate at which phosphate was excreted was lowest in the morning, 48, 39, and 32 per cent. respectively of the average rate when the output was highest in the evening, in experiments lasting respectively 16, 26, and 27 days. Dr. Broadhurst and I recently reported to the Physiological Society experiments in which three normal subjects exhibited the same phenomenon when no food was taken for 36 hours, so that the rise in the output of phosphate as the day goes on, and the high output at night, are independent of the intake. And that they are independent too of change in reaction is shown by the low output of phosphate in Groups V. and VI., in which there was no alkaline tide. It is also, so far as data at present available indicate, not determined merely by muscular activity. It seems at present to be, like the tide in the output of uric acid, related to the alternating periods of sleep and waking; we are still at work on this point. But in any case the abnormal acidity of urine in nephritis in the conditions of the water test employed can hardly be attributed to an abnormal output of phosphoric acid. It is probably a manifestation of the tendency to acidosis in certain types of nephritis described by Henderson and Palmer.[4] It is more easily detected than an alteration in the hæmoglobin dissociation curve.

Clinical Value of the Test.

As to the clinical value of the phenomenon as a test of renal efficiency, it must be remembered that the cases in which it was observed were soldiers, the great majority of whom contracted nephritis in the field in France. These cases appear to have been almost always cases of acute glomerulitis—characterised, that is, by hæmorrhage, raised blood pressure, often only transiently raised, and œdema, as a rule only at the onset and of short duration. The cases rarely reached Sheffield earlier than the twelfth or fourteenth day; many of them reacted in Groups I. or II. at the first test and were obviously well on the way to recovery. And it is recognised that the majority of cases of acute glomerulitis recover completely.

The pathological condition appeared to consist in the plugging of a larger or smaller number of renal tubes by blood clot, and the recovery to depend upon the gradual expulsion of clots and tubular casts of altered blood, a process often lasting for months. The output of chloride was sometimes notably low in the early or more severe stages, and tests by administration of additional chloride, used at this stage in some cases, showed this more clearly. Low output of nitrogen was much less common; and though the non-protein nitrogen of the blood was estimated in very few of the cases, it was only in those of obviously critical illness that abnormal figures were found.

A greater difficulty in eliminating chloride than nitrogen suggested that a film of clot composed mainly of red blood corpuscles might show in some degree the same impermeability to chloride and permeability to urea that the individual red blood corpuscle is well known to exhibit. Several experiments on this point done with films of blood clotted upon a dialyser point to this being the case, but they are not completed; the results will be ready only for some other occasion, when proposed improvements in method have been carried out.

My own experience of this test on other types of nephritis is confined to a comparatively small number of cases, not sufficient to draw inferences from; and there must be many better qualified than I to speak as to experience of other tests on this or any type of case.

[3] Quarterly Journal of Medicine, 1908, i., 416.

[4] Henderson and Palmer: Jour. of Biol. Chem., 1912, xiii., p. 393, and 1915, xxi., p. 37.

An Address

[ABRIDGED]

ON

THE UNITY OF MEDICINE.

Introductory to the Post-Graduation Session at the Central London Hospital for Diseases of the Throat, Nose, and Ear,

By C. O. HAWTHORNE, M.D. Glasg.,

CONSULTING PHYSICIAN TO THE HOSPITAL.

Not a few of the clinical conditions which are to be studied in this hospital, and which at first sight may seem to have a purely local incidence and significance, possess, as a matter of fact, close and intimate relations with other departments of medical doctrine and practice; and, further, the full meaning of these quasi-local conditions can only be realised when their relationships and associations are recognised and appreciated. Such a thesis may draw arguments in its support from many different sources. At the outset it permits the commonplace remark that individual organs—the throat, the nose, the ear—are not isolated and self-contained pieces of apparatus, but, on the contrary, are parts—essential parts—of a complex and delicately adjusted physiological machine, and that consequently they may suffer as a result of disturbances which arise primarily in other and possibly remote organs, even as these latter may in turn come under penalties as a consequence of rhinological, otological, or laryngological delinquencies. If, as we are told on apostolic authority, "are they many members, yet but one body," and if, as we learn from the same source, "the eye cannot say unto the hand, I have no need of thee," manifestly a similar taunt is equally forbidden to the labyrinth, to the lingual tonsil, and to the arytenoid cartilages. What is true on the physiological plane is equally true in pathological and clinical studies, as, indeed, is expressed in the text, "whether one member suffer, all the members suffer with it"—that is to say, if we may apply the apostolic principle to our immediate circumstances medical practice cannot be the mere improvement—utilitarian or æsthetic—of particular organs, or the mere rectification or readjustment of particular functions.

The Immediate Duty of Medical Practice.

A wider outlook must be cultivated, seeing that its immediate duty is the care and custody not of organs or functions but of individual and suffering men and women; and hence we are bound to admit that a practitioner who decides, as is his right, to limit his activities to a selected group of local disturbances comes under a moral obligation to secure the coöperation of a colleague able and willing to meet the wider claim. This is a word which, with all due deference, may well be spoken in any hospital professing and cultivating the art of special practice, for the real burden of professional responsibility is provided not by maladies but by men. Nay, I will go a step farther and will add that no conclusion based solely upon the contemplation of local disturbances may even pretend to a diagnostic rank or status. Such a name as nasal polypus, or Eustachian catarrh, or papilloma of the larynx (to select, designedly, extreme examples) is nothing but a label attached to a positive condition existing in a certain limited and selected portion of the body, whereas a diagnosis is a complete picture, positive and negative, of an individual patient obtained by a comprehensive and inclusive survey of the whole man. The exhortation applies, let it be recognised, in both directions. It is for those who cultivate a limited though concentrated view not to forget the wider claim, and for those who have a broader horizon to recall the possible need of expert help in particular departments. While the one thing is done the other may not be left undone.

We hear a good deal nowadays of "team-work" in medicine. The phrase is one of the idols of the hour, and it is true in so far as it implies that no one man can pretend to compass fullness of knowledge or of

skill in all departments of medical work. Hence for scientific investigation and research the division of labour is advisable and even necessary. But let it be remembered that the immediate business of practical medicine is neither the demonstration nor the verification of scientific truths, but the care and protection of the individual patient, and for my own part I should cultivate a sense of acute sympathy for any sick man who was placed under the care of a "team" of experts. In the charge of a patient, whatever contributions may be obtained from other sources, there is required for purposes of safety one supreme command by which the final and governing word may be spoken and one individual judgment carrying full responsibility and demanding the natural corollary of full responsibility—unchallenged and unquestioned authority. In medical practice the study and treatment of local disturbances cannot, either on prudential or on scientific grounds, be justifiably divorced from the cultivation of a full diagnostic ambition.

SIMPLE EXAMPLES.

Take such a local condition as paralysis of the soft palate. Even a tyro in medicine is aware that palatal paralysis demands a complete investigation of the nervous system, an examination of the cardio-vascular apparatus, a detailed test of the musculature of the eyeballs, and a determination of the existence or non-existence of albuminuria, lest haply what appears as a merely local defect may be in reality only one of many prejudices produced by the presence in the body of the toxin of diphtheria. And does not a similar claim arise in many, if not in all, local inflammatory attacks affecting the fauces and naso-pharynx? Unless this claim is satisfied the name of the local condition may indeed appear on your case-sheets, but the diagnosis is still sadly to seek.

Again, I might recall nerve deafness and remind you that this local defect may possibly be the first clinical event in the evolution of a tabes dorsalis, or a signal of the approach of a functional hemiplegia; or I might speak of laryngeal palsies and of the announcements made by these relative to disturbances (functional or organic) in the nervous system, or to their association with intra-thoracic aneurysms or other mediastinal tumours, or with mitral stenosis.

The list might be multiplied and extended almost indefinitely with experiences which proclaim that localised bodily disturbances are often, or even usually, an intimation of claims having a wide range and high importance and that, consequently, the severe and rigid expert, if he may not satisfy these claims himself, must hand over his local discovery and the responsibilities attached to it to a colleague capable of meeting the wider challenge. In every case the question is not, "Who is in charge of the throat, or the nose, or the ear?" but, "Who is in charge of the patient?"

A BRIDGE BETWEEN TWO TERMS.

It happens that all the associations I have just mentioned as illustrations of the general argument are comparatively simple and direct, and that they are more or less generally allowed, even though the practice to which they exhort is not invariably followed. I propose, however, to take an extreme case, for if I can succeed here all less difficult and less remote issues must be included in the victory. My first term in the association I wish to establish is simple anæmia or chlorosis—a clinical state familiar to every practitioner and not, or at least not yet, the hunting-ground of any group to which can be attached that unhappy, circumscribed, and extraprofessional name the "specialist." My last term describes a condition painfully frequent in the practice of this hospital—inflammatory or suppurative disease of the middle ear. What I have to do is to construct a clinical and pathological bridge between these two terms. And if I can succeed in doing this you will, I am sure, agree I was justified in the general proposition that local disturbances may have widespread, intimate, and even remote relations, and that these relations, either in the field of doctrine or in the field of practice, cannot safely or justifiably be ignored.

Chlorosis.—This disease pursues in the great majority of cases so placid, so uniform, and so uneventful a career that its existence fails to excite even a shadow of anxiety in the mind either of the patient or of the practitioner. But there are rare exceptions. Occasionally a young woman, the subject of chlorosis but otherwise apparently healthy, develops venous thrombosis, generally affecting the large veins of the lower limbs. Naturally such a condition involves the risk of pulmonary embolism, but as a matter of fact recovery is generally complete, and the circulation is restored presumably either by absorption or by organisation and canalisation of the obstructing clot.

A second complication of chlorosis is a more or less severe and sudden cerebral attack. The symptoms include such events as pain in the head and back of the neck, vomiting, delirium, stupor, coma, various paralyses, including ocular paralysis, and sometimes double optic neuritis. In some of these cases the cerebral attack has proved fatal, and I believe that in all of them post-mortem examination has revealed one and the same pathological condition—namely, thrombosis of the intracranial veins and sinuses. Therefore we are justified in concluding (1) that intracranial sinus and venous thrombosis is the cause of the cerebral attacks which occasionally complicate the course of chlorosis, and (2) that such thromboses may number among their consequences double optic neuritis and ocular or other limited palsies.

Here is a third possibility of chlorosis. If you will take the trouble to examine with the ophthalmoscope every chlorotic patient you will now and again discover one of them to be the subject of double optic neuritis. She may or she may not complain of some defect of vision, and she may or may not suffer from headache and vomiting. But, in any event, if you will treat her with rest in bed and iron, instead of with the inevitable potassium iodide, on the view that she is the victim of an intracranial tumour, she will almost certainly get quite well, and the optic neuritis will disappear. Once more, with the optic neuritis may be an ocular paralysis, and rarely such paralysis may be the sole unusual event.

There are thus a group or series of cerebral events to be recognised as possible developments in chlorosis. At one extreme we have alarming disturbances with a fatal termination; at the other nothing but optic neuritis or an ocular palsy or the two in combination; and between these two extremes cases of various degrees of severity. It is certain that the fatal cases are due to, or are at least associated with, intracranial venous thrombosis. Is it not, therefore, in the highest degree probable that the lesser disturbances also have this same interpretation? To say that these disturbances disappear is no argument to the contrary, for if the circulation may be restored in a thrombosed femoral vein it may surely be restored also in a thrombosed venous channel situated within the skull. Hence I put it to you as a reasonable belief that when optic neuritis or an ocular paralysis occurs as the sole departure from the usual course of chlorosis the event is an index of thrombosis within the intracranial veins and sinuses. Here, then, is my first step in the endeavour to establish a relationship between chlorosis and suppurative disease of the middle ear; it is, in a word, the proposition that chlorosis may include an optic neuritis as the sole evidence of an intracranial thrombosis.

I now turn to the other extreme of the suggested association and endeavour to establish therein the same possibility.

Suppurative disease of the middle ear.—In every case of this disease there is, I understand, a greater or less degree of fear of some unhappy intracranial development—septic sinus thrombosis, meningitis, or temporo-sphenoidal or cerebellar abscess. The clinical evidence of the development of one or other of these conditions may be gross, extreme, conspicuous and beyond challenge, and may include double optic neuritis. With these extreme cases I have at present nothing to do; they are related to surgical interferences and are quite outside my immediate purpose. But in contrast to these severities there are cases of middle-ear disease in which the only unusual event is double optic neuritis or an ocular paralysis or the one and the other together; and the whole of these disturbances may disappear without the intervention of the surgeon's art. In other words, suppurative disease of the middle ear has among its possible developments double optic neuritis and ocular paralysis, developments which, as we have already seen, chlorosis also may include. The two conditions share in this respect a common liability. When this liability is realised in chlorosis there are good reasons to believe that it depends on intracranial sinus and venous thrombosis. Is it not reasonable to apply the same reasoning to optic neuritis or ocular palsy when one or other of these events occurs in suppurative disease of the middle ear? Such disease certainly includes the possibility of intracranial thrombosis; and such thrombosis may have optic neuritis or an ocular paralysis as its sole clinical witness. What other intracranial event common to chlorosis and to disease of the middle ear and capable of causing double optic neuritis can be imagined?

If this question must receive a negative answer I may claim to have succeeded in my enterprise and to have

shown that there is a relationship not without interest and value, at least in the field of doctrine, between chlorosis and suppurative disease of the middle ear, though at first sight no two conditions could well seem more remote the one from the other.

THE PURPOSE OF THE STUDY AND PRACTICE OF MEDICINE.

This purpose is twofold. One object obviously is to fit ourselves to serve the community and so enable us to discharge our duty to our neighbours; and one of the attractions of medicine is that it is rich in opportunities of this order. But another and quite worthy motive is to serve ourselves, not merely financially, but subjectively and intellectually. Like other men, the practitioner has to think of his own skin and to save his own soul. The question, therefore, arises whether medicine affords materials for these ends, and my submission is that one reason why we select and follow this career is because it includes scientific and philosophic interests which offer food for reflection, and refreshment and solace amidst the stresses and disappointments of life. Hence, if what I have said on technical topics has no other value, it may at least make this claim—that it serves to remind us that within the resources of our daily work and duty we have a sure "hiding-place from the wind and a covert from the tempest," as well also a stimulus to sustained and high endeavour.

But I am not going to allow that the story which leads from chlorosis to disease of the middle ear has no practical exhortations and consequences. At the very least it proclaims the need for the cultivation of ophthalmoscopic examination as a routine clinical practice both for the practitioner with whom chlorosis is a daily experience and for the surgeon who wins his triumphs in the fields of rhinology and otology. In each instance, unless the ophthalmoscope is used, the responsible medical adviser can neither be in possession of all the facts of the situation with which he is dealing, nor can he pretend to be equipped for his task and prepared for developments and eventualities when these arise. There are two common and widespread delusions on this topic. The one is that the ophthalmoscope is a sacred instrument which may only be brought into action under the presiding genius of an ophthalmic surgeon, whereas, in truth, the ophthalmoscopic picture, announcing as it does conditions of the nervous and vascular apparatus, is of universal interest and importance to all who are engaged in the diagnosis and treatment of disease.

The second delusion is that the ophthalmoscope is a particularly difficult instrument to apply. Doubtless those of us who lived in the days of the reflecting ophthalmoscope had to spend time and blood and tears in acquiring dexterity and confidence in its use. But with the modern electric and self-lit instrument it is almost as easy to see the fundus oculi as it is to examine the tongue. The interpretation of the facts observed of course requires judgment, but judgment comes of experience, and those who make a routine practice of examining the fundus oculi will soon be quick to appreciate the limit where the physiological is replaced by the pathological, even as the daily hearing of normal heart sounds prepares the ear to recognise the extraneous and the abnormal. The race is easy to run, and at the goal is a considerable material and moral reward.

CONCLUSION.

Let us apply in a word or two such teaching to part of the work of this hospital. Suppurative disease of the middle ear, which here abounds, carries, as is admitted, the risk of intracranial complications which may in individual cases demand prompt and serious operative procedures. In some instances the evidence is plain beyond challenge, and of these I say nothing. But there are others in which the evidence is so slight or doubtful that even an experienced judgment is compelled to hesitate. Now suppose that in such a position the ophthalmoscope is used for the first time and double optic neuritis is discovered. The fact surely has an alarming quality in reference to the issues which are at stake. But it is not conclusive if, as I have already stated, double optic neuritis is found in a certain proportion of cases of middle-ear disease without other evidence of intracranial development, and if, as I have also stated, the neuritis in some such cases disappears apart from intracranial operation. Consider the bearing of such a conclusion in the case just suggested, the case that is of middle-ear disease with balanced evidence of some intracranial extension and with the discovery, in the course of the debate, of the existence of double optic neuritis. Is it not evident that in such circumstances it is an almost vital point to be able to say whether the optic neuritis is or is not a new fact? But no one can make this statement unless he has examined the fundus oculi at a date anterior to that on which any question of intracranial complication arose. Hence, though it may seem a hard doctrine, there is no escape from the conclusion that every patient who is under treatment for disease of the middle ear ought to be made the subject of ophthalmoscopic examination, just as, for reasons already given, the same practice applies to sufferers from anæmia or chlorosis. And both these lesser exhortations come under the sway of the general and commanding truth that completeness of examination is to be encouraged not only for the protection of the patient, but also for the entertainment, the education, and the mental comfort of the physician.

A NOTE ON OUR PRESENT CONCEPTION OF

PSYCHOLOGICAL REPRESSION.

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IT is rightly expected that new doctrines and theories should pass through the fire of criticism before being generally accepted by the profession. Only thus can their true value be assayed and their proper level found, and it follows that the more startling and revolutionary the new teachings are the more intense and prolonged will the period of criticism be. But, granting these conditions, it is still hard to explain or justify the truly remarkable reception which has been accorded to the doctrines of psychoanalysis.

One hesitates to suggest that any critics may have been guilty of wilful misinterpretation, although in certain notorious instances one is almost forced to this very unpleasant conclusion. In any case, the fact remains that it is difficult to open a medical journal without finding views and statements attributed to "the psychoanalysts" which no authority on the subject has ever expressed, and which many have specifically disclaimed; and numbers of the constant succession of papers and criticisms dealing with points in psychoanalysis betray in every line the critic's lack of knowledge of what "the psychoanalysts" really do say on the matter under discussion.

Uninformed Criticism.

If there is one part of the subject more than another on which it is desirable that there should be clear understanding, it is that part dealing with those fundamental "mental mechanisms" which Freud has done so much to clarify and expound. The latter are capable of lucid exposition, they are of intense interest, and their validity can be tested daily by anyone possessed of ordinary powers of observation and introspection. Familiarity with them is an essential preliminary to further study of the subject to which they form a fascinating introduction. Yet gross misstatements of their own fundamental principles are attributed to "the psychoanalysts" with almost maddening persistence, and the critics succeed in tiring and confusing those of their readers who are not anxious to enter into controversy or to become expert in the subject, but who do very keenly desire to know what are its real principles and tenets and how it justifies them in order to judge of its value and truth for themselves.

The conception of "psychological repression" is one of the central points of Freud's psychology, and experience

both of teaching and of conversation with regard to it shows it to be one of the most difficult to grasp. This may be the cause or possibly the result of another fact—namely, that this very subject of repression has been the target of more criticism than probably any other single point in psychoanalysis, excepting always the outbursts against that terrible word "sex," which are ever with us. Now, there is any amount of scope for discussion and criticism in this matter of repression, but when one reads in seemingly endless repetition such phrases as, "We are asked to believe that we can forget to order"; "Repression is defined as a conscious and voluntary act"; "Unpleasant experiences ought to be forgotten"; "The more unpleasant an experience is the more readily it is remembered," &c., one is forced to wonder if the writers have ever really troubled to read what Freud has to say on the subject before ridiculing what they regard as his conception. Of the very numerous criticisms beginning "We learn," "We are told," "The psychoanalysts say," &c., sadly few go on to indicate exactly where the startling views thus introduced are to be found.

Consulting-room and Confessional.

A very favourite line of argument is the drawing of a parallel between the psychoanalytical consulting-room and the confessional, and it is hard to convince those who draw it that the analogy is entirely false. A consideration of this point will lead us at once to a discussion of what is really meant by the term repression. A penitent confesses to a priest matters "weighing on his mind"—matters fully and vividly in his consciousness, accompanied by certain pronounced emotional affects, such as fear, shame, and remorse. His difficulty at the interview lies in the natural and universal tendency to resist "giving oneself away." This reluctance to mention to another person any discreditable or embarrassing facts of self-knowledge is, of course, admitted by everyone; Freud discusses it fully under the name of "external resistance." Beyond stating that it has nothing to do with repression proper, we need not enter upon the subject here.

The patient under psychoanalysis states the matters which are "weighing on his mind" as an obvious preliminary to any treatment at all. In many cases he reaches the point attained by the confessing penitent before he has been ten minutes in the consulting-room. In other words, he states his symptoms. Unless these happen to be of a specially embarrassing nature to him and thus productive of external resistance, he has no difficulty in so doing. From this point there ceases to be the very slightest analogy between the penitent and the patient. The former has a clear memory of defrauding his neighbour, and suffers from the appropriate emotional state of self-abasement and remorse; the latter has a clear memory of walking across open spaces, and suffers from the entirely inappropriate emotional state of apprehension and terror. The object of the priest is so to alter the balance of his penitent's emotional tendencies that the latter will refrain from a repetition of his act, whereas the object of the physician is to remove the abnormal emotional affect from his patient's act altogether, so that he may repeat it with impunity. He has to put emotion where it belongs, and the patient is not in a position to give him direct information on the point. If he was he would not be a patient. For the sake of simplicity I have instanced a patient with obsessions, but the principle holds good in all forms of neurosis.

Difficulty of Psychoanalysis.

Now, the task of psychoanalysis consists in the first instance in finding out the acts and thoughts of the patient to which emotions, at present obviously out of place, should properly belong. The great difficulty of this task lies in the fact that at the moment the patient cannot recall any such acts or thoughts which he can connect or associate with his present emotional condition. It is contended, according to the psychoanalytic theory, that such acts or thoughts exist, and that the patient's inability to bring them forward at once and associate them with his present emotions (an inability which is at the root of his illness) is simply an extreme instance of a tendency or habit of mind common to mankind in varying degrees, and seen most perfectly and frequently in the neurotic—namely, the tendency of dissociation. To this special degree or variety of the dissociative tendency the name of repression has been given.

An Instance of Repression.

As I write these words I am faced with a simple but sufficient instance of the presence and practical working of this tendency in the normal individual. For some weeks my attention has been occupied, off and on, in arranging for a social function in connexion with the hospital, to take place this afternoon, at which my attendance is necessary. I spent a great part of yesterday morning in settling its final details. Yet I have just realised that during yesterday afternoon I told two different persons, after considering the point, that I should be free and able to see them at my house this afternoon. To the inevitable humorist who finds the conclusion of the whole matter in merely accusing me of two distinct acts of incredibly gross carelessness in rapid succession I have, for the moment, no reply. The point to be made is that in some way this afternoon's function and the ideas associated with it were shut out from my conscious mind when I made the other appointments. We may note in passing that to suggest that this was the result of a "conscious and voluntary effort" on my part is patently absurd. Such an effort to "repress" an idea obviously involves a consciousness of what is to be repressed—which is exactly what I did not have. All that can be said is simply that, owing to the functioning of a dissociative tendency in my mind, I was for the moment in a state which differed only in degree from double personality. As one of the two portions of mind, however, consisted only of such a very small group of thoughts and ideas, it is more usual and accurate to say that it had been *repressed* from the main body of consciousness.

We need not, however, arrive at the alarming conclusion that any of us may one day find that he has undertaken to be in two or three different places at once, although I am sure that many of us must remember instances parallel with the one I have given. The repression I have instanced was a very simple functioning of the tendency—a kind of forlorn hope which was foredoomed to failure. The thought of this afternoon's function is linked to my consciousness by so many associative threads that its repression for any length of time in myself, or, indeed, in the most pronounced neurotic, would have been something of a psychological miracle. Even its very temporary absence from my mind at the moments when I was fixing the clashing appointments may be regarded as rather a striking success for repression in a normal person.

Repression and Forgetfulness.

What, then, are the conditions under which this repressive tendency is most likely to function actively and to make its effects manifest? The first is, as already stated, that the subject should be a neurotic, and the second is that the material to be repressed should be of a nature unpleasant or painful to him. A moment's consideration of my own unfortunate lapse showed this second condition to lie at its root. The two appointments I now have to cancel are with a patient and a friend, both of whom I am particularly anxious to see again, whereas I am, and have been all along, extremely unwilling to attend this afternoon's function, and would have avoided it if possible. Had I been looking forward to it with pleasurable anticipation, I cannot conceive that I should have "forgotten" it at the critical moments.

The orthodox criticism at this stage is a remark to the effect that it must be pleasant to have that happy knack of "forgetting" what one does not want to remember. As a matter of fact, it is very far from pleasant, and surely no sane man would wish for an act of forgetfulness resulting in frenzied work with telegram and telephone and the risk of offending a patient and a relative. But the real interest of such a criticism is that it shows exactly where the misunderstanding is apt to come in—namely,

in a confusion between "forgetting" in the ordinary sense and "repression." It seems to imply that there exist "acts of forgetting" which are a kind of psychological opposite to "acts of memory," and confusion naturally results. I forget what I had for breakfast last Tuesday morning, and I forget the name of an hotel acquaintance with whom I played a few rounds of golf on my holiday last year, in the ordinary sense of the word. I do not "forget" in the same sense the name of the man with whom I have arranged an interview for next week. I cannot possibly have "forgotten" it. I wrote to him two days ago, and I see his brother every day. None the less, I have great difficulty in "bringing it to mind." The name is frequently absent from my conscious mind when I wish to find it there; it is, for the time being, psychologically forgotten, and instead of springing to mind on the faintest associative stimulus a very real and sometimes prolonged effort is required to recall it. More accurately it may be said that the ideas which the name represents and suggests tend to be shut off from the very immediate and complete connexion with my consciousness in which one would expect to find them under the circumstances. This tendency is "repression." The reason why it should attempt to manifest itself with regard to this particular name is easily discovered. The forthcoming interview will be a painful and unpleasant one, and worries me every time I think of it. The mind when left to itself, so to speak, tends to deal with irritating groups of ideas in a way very comparable to that in which the omentum deals with a foreign body in the abdominal cavity. There is as much conscious and voluntary effort in the one process as in the other. Fortunately, however, we have a control over the mind which we have not over the omentum; the processes and tendencies of the former can be altered and modified and corrected by education, training, and psychotherapy.

Primary and Secondary Mental Systems.

The question now arises as to why unpleasant and painful thoughts should be dealt with thus and what it is which determines whether they are unpleasant or not. To answer this question it is necessary to go a good deal further into the subject. Manifestations of repression of the type which I have instanced do not by any means illustrate its main and most important function, which is not merely to shut off certain ideas from consciousness but to prevent certain ideas ever reaching consciousness at all. This function, which is the essence of repression, has almost entirely escaped the attention of the critics. It is naturally more difficult to prove and illustrate than the type of functioning described above, and convincing instances are not easy to find in everyday life. One may mention such cases as that of the man who is literally incapable of seeing facts which contradict a cherished theory, or the man who cannot see in his friend faults which are obvious to everyone else; but these do not fully illustrate the point. We have to recall Freud's hypothesis—he expressly states that it is only an hypothesis—of the "primary and secondary mental systems." Very briefly and baldly put it is that apart from the thinking, feeling, remembering, educable, mental apparatus which we possess (which he calls the secondary system), we have a simpler, cruder, infantile, "primary" mental system, which is antecedent to the secondary one, is in large measure superseded by it, but remains distinct, with no great alteration, as our "unconscious mind." It is uneducated and uneducable, non-moral, entirely egocentric, and altogether concerned with seeking pleasure for the organism and avoiding pain—that is to say, with gratifying desire. Its way of accomplishing this is purely sensory: it makes imaginary pictures of fulfilled wishes, whereas the secondary system works on motor lines and sets about altering the environment to bring about the desired result. A hungry infant may obtain an immediate but transient and insubstantial satisfaction in a mental picture of the mother or nurse whose last arrival meant a feed, but a hungry man obtains real satisfaction by the more roundabout way of procuring money, entering a restaurant, and ordering food. Traces of the working of the primary system are to be seen in some neurotic symptoms, in day-dreams and phantasies of the normal adult, in the conduct of very young children, in dreams, and in the hallucinatory psychoses. It is a mechanism obviously inadequate for a cold and practical world, and the individual soon realises the unsatisfactory nature of imaginary wish-fulfilments. The alternative, of course, is that the energy produced by the desire should be handed up to the secondary system to be used in the attempt to alter the environment and bring about a real gratification.

Intra-Psychic Conflict.

Here we touch the centre of the problem. The conscious, educated, secondary system may have its own views as to what is for the good of the individual, and may refuse even to acknowledge, far less carry out, any given desire or tendency which the primary system has referred to it. The mental process in question can thus never avail itself directly and openly of the secondary system to bring about a satisfactory gratification or result, for the good reason that this system ignores, or even denies its existence. This is the state of affairs known as intra-psychic conflict—a desire with its accompanying emotional tone and tendency to action being refused admittance to the thinking, working, conscious mind which alone is capable of bringing about a real and satisfactory fulfilment. This damping-down of a mental process which has arisen from the primary system, the preventing it from ever reaching consciousness and forming associations with the contents of consciousness is the very essence of psychological repression.

The difficulty of illustrating this point convincingly has already been referred to. If one considers the idle phantasies and day-dreams of the normal person, which, as has been stated, show traces of the manner in which the primary system functions, something comparable, though in but a partial and superficial way, to the process under discussion can be observed. Everyone, for example, has in some idle moment pictured himself in a coveted post or appointment as the result of a series of deaths and accidents among those who at present block his way to it, or perhaps owing to some imaginary crisis in which he plays a part which puts him in the very forefront of his fellows and convincingly demonstrates his superiority to them. Here the day-dream presents the dreamer with an immediate but imaginary wish-fulfilment, and in so doing has scorned the base degrees by which the secondary system strives to ascend to the same goal. The point at issue between tbe systems, so to speak, is in this case not the goal, but the means by which it is to be reached. The day-dream, being unhampered by logic, probability, altruism, morals, or criminal law, annihilates competition without a qualm, and is quite capable of literally wading through slaughter to a throne. The secondary system, in painful subjection to things as they are, sets about the task of altering the environment by methods compatible with law and order. That this proceeding may very well occupy a year for every moment taken by the day-dream is not surprising when the difference in method is considered. Modest wire-pulling, for instance, is but a poor substitute for wholesale death and destruction as a means of eliminating competition. The goal, however, once reached, is real; the goal of the day-dream is gained in a moment and vanishes with the dream, leaving not a rack behind.

When we ask our day-dreamer if he thinks of killing off his competitors he will probably reply with great indignation and perfect truth that "such an idea has never entered his mind," which is precisely the point one is out to demonstrate. His tendency to repression has taken very good care that the idea shall not enter his conscious mind. A directly opposite idea may very probably have been emphasised in consciousness, and we may observe that he shows a profound and exaggerated courtesy to his most dangerous competitors.

Conclusion.

It is to be noted that so far as we have discussed it repression is not to be regarded as in any way a pathological or abnormal process, but as one which is natural, universal, and, indeed, essential in training and education. The limits of the normal are only passed by this

natural process going to abnormal lengths, or, more frequently and importantly, by the devices adopted by repressed material to overcome or evade the repressing force.

Such events occur in neurotic persons, and are the stuff of which their symptoms are made. They are of intense interest and importance, but lie beyond the scope of this paper. Why repressed material should strive to come to consciousness and how it succeeds in doing so cannot now be discussed, nor can more be said here concerning the "primary and secondary system" theory. It has only been mentioned in the attempt to make clear the theory of repression which depends upon it, and no attempt is here made to argue or justify it on its own merits. It has all been very fully expounded by Freud and his school for those who care to read.

The present writer holds no brief for psychoanalysis. The literature is somewhat chaotic; only one of the prominent writers on the subject can honestly be called really lucid; and almost without exception they have a knack of arousing resentment by the unfortunate attitude they adopt towards those who do not share their views. But when all this is admitted it does not alter the fact that they have a right to expect that the critic should at least have read up, if not practised, the subject he is criticising. If a man believes, as many apparently believe, that repression consists in a patient saying to himself, "Go to; I shall now forget so-and-so," and refuses to revise that conception, it is a waste of time for all concerned to discuss repression and its action in the normal and the neurotic with him at all. This paper makes no pretence at being more than an elementary survey of the subject, and no apology is offered for its being so. The suggestion is humbly offered that if the authorities on psychoanalysis could see their way to expounding the essentials of their subject to us with a little more simplicity and patience, much good would result and much criticism be disarmed. Those who recall a certain celebrated poem on the subject of criticism will remember that the critic was only finally discomfited when the white owl came off its perch.

PSYCHOLOGY AND MEDICINE:

A PLEA FOR THE INSTRUCTION OF MEDICAL STUDENTS IN PSYCHOLOGY.

Read before the Australasian Medical Congress[1] *at Brisbane in August*

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IT seems strange that medical education, with its high standards of requirements and constant effort after extension, remains silent and almost immovable in dealing with man from above, as well as from below—psychologically as well as physiologically. Through physics and chemistry the student of the present learns the properties of matter, and the mechanical laws along which it moves. Through biology and bacteriology he gains some knowledge of developmental and other vital processes. And through anatomy, physiology, pathology, and hygiene, he comes to understand something of the human body and its possibilities. Thus prepared, he enters upon the chemical portion of his studies, meets disease in many phases and learns their treatment. At a touch, however, of criticism, such preparation is found to be fundamentally incomplete. The end of the study, we are told, is to attain and maintain the "Mens sana in corpore sano." How can this be where the corpus alone is regarded, and the mens treated as if non-existent? And the magnitude of the neglect becomes the more apparent when we remember that of the three fundamentals of human existence—matter, life, and mind—there are grounds for giving priority, and even primacy to the mind.

It is difficult to understand how scientific procedure which really only aims at classifying and describing, and which is always passing from a present to a future theory of explanation, can have stopped short of leaving, as the realistic Zola said, "a door open upon the mysterious also." This is specially so in these days when science has had to recast its views of the fundamentals of both physics and chemistry. One could understand, even whilst one regretted, its disregard of psychology some decades ago, when a mechanical explanation sufficed for everything from a piece of putty to a play of Shakespeare. But nowaday, when matter itself seems lost in energy, and when physicists such as Stokes, Kelvin, and Clerk Maxwell, and philosophers such as Ward, James, and Bergson, to say nothing of progressive universities and even the leaders of the medical profession itself, cannot accept the mechanical explanation, it is indeed extraordinary to find our medical schools still regarding the study of man as a purely materialistic problem.

Nor can it be maintained that psychology with its wealth of material, gained along the lines of experimental as well as of introspective study, its definite questionings along definite lines of research, its well-equipped laboratories, and its departments—child, adult, individual, normal, abnormal, and social—with their mathematical and psychological subdivisions, is not as much a science as many others that form part of the accredited curriculums. True, in it there are differences of opinion upon important points, but the same applies to most if not all others, and divergence of views, as, for example, regarding animism, psychophysical parallelism, interaction, and the like, calls not for summary rejection of the whole science, but for fuller investigation of the subjects of difference.

Again, leaving speculative fields for the so-called practical—really leaving the imaginative for the partly known—this continued neglect of the psychical cannot be due to absence of knowledge of potency and effects, for its influence upon life and behaviour by way of functions, organs, organisation, nutrition, and repair are the common plans of everyday experience. Anyone, indeed, who looks, finds that ideation, emotion, volition, power of control, suggestion, mental synthesis, states of excitement, depression, and satisfaction are inseparably bound up in innumerable disease manifestations, and that improvement and cure are brought about and often made permanent along psychical lines, even after physiotherapy of all kinds has failed. And, going a little deeper, what essentially are the almost world-wide resorts to faith-healing, quackery, Christian science, and self-doctoring, but foolish, uninformed, and often fraudulent attempts on the part of individuals or corporations to supply a want disregarded by the professional. It would, indeed, be difficult to overestimate the amount that our professional apathy thus produces by way of good undone and of evil permitted.

Such being the case—and who will deny it?—why all this folly and failure? There can be but one answer—our professional ignorance. The profession, never having been trained, cannot, and does not, really know the situation. Under ordinary conditions, apparently, it would have taken a generation or so to have produced any marked change, but, amongst its many other lessons, this greatest of all wars has taught us, trumpet-tongued, the fundamental value of psychology. Guns, ammunition, transport, housing, clothing, feeding, forthcoming during the war—the world has never seen their material equal. But even these can be matched by the psychological "will to power" of the Hun, the "La patrie" appeal of France, the "sense of duty" of England, and the "freedom and empire" cry of the Dominions. And coming to the individual combatant, what brought him there, held him there, and sustained him against all odds but his intellectual, emotional, and volitional faculties? As a concrete example it was, as our own corps commander has told us, by his recognition of and appeal to their psychology, that our incomparable soldiers ended their awful stage of endurance in the triumphant advance, which may fairly be claimed to have brought the war to a conclusion some 12 months sooner than would have otherwise occurred!

[1] As a result of the reading of this paper a resolution was adopted by the Section of Neurology asking the universities to provide instruction in psychology for medical students (see THE LANCET, Oct. 16th, p. 816).

But how did our profession meet the war situation? As might be expected, we played for long a sorry and at no time an entirely satisfactory part. We sent men psychically unfit to enter upon strains for which they were temperamentally unsuited and then back again, when their prompt, even immediate, breakdown was inevitable. Our medical officers at the front, from their ignorance and inexperience, were unable to differentially diagnose the different psychical disabilities incurred and even more unfit to treat them. Men were punished, even shot (though not by us), for such disabilities, as if they were crimes. After a time the cases were taken out of the hands of the R.M.O.'s—things had got so bad—and dealt with in special hospitals miles behind the front, but still under shell-fire, and even these special hospitals were not specially staffed, and could not hold more than a small percentage of the cases. Those who were there regarded as unfit for duty were sent back to the base, not, except in comparatively few cases, to a special nerve hospital, but a general hospital—one of thousands scattered all over England—where they received any, every, or no treatment except that which would have been given them by psychological experts. There or in other hospitals they remained usually for months, misunderstood and uncared for, until, finally, discharged often without any pension, because an uninformed board could find no disabilities! And then, at all sorts of intervals, they drifted back to pensions, repatriation, vocational training, or remained indefinitely suffering, dissatisfied, a trouble to all concerned. Three years after their disability I have known them come, for the first time, under expert treatment, and be on the way to cure within a few days! Meantime surgeons, physicians, electricians, orthopædists, specialists of all kinds, and exponents of every form of physiotherapy would have had them in hand, attempting, where their psychical disability was recognised (which was the exception), to slowly and laboriously rebuild and re-educate where there should have been sudden resurrection. Returned to Australia, the first arrivals were dismissed without pension as malingerers, the next batch dealt with as requiring isolation and restraint, and ever since until the last few weeks all have been under the triple control of defence, pensions, and repatriation, without any comprehensive general scheme.

It must be remembered that the war did not originate, it simply extended and magnified the number of such psychoneurasthenic cases. Civil practitioners, however, have got to learn the lessons which the war has made prominent to their military brethren; and the same rich field of practice awaits them, and a similar dissatisfaction will follow failure to enter in and occupy. I have, however, sufficiently elaborated this point in a paper before the Melbourne Hospital post-graduate classes, and published in the *Medical Journal* of Australia, Oct. 4th, 1919.

I bring the matter before Congress in the hope that this reform may receive its imprimatur, and its authority brought to bear upon medical education and medical practice. How best to secure this most desirable end I leave with the Section. Meantime, I would suggest that it drafts for the consideration of the full Congress a resolution affirming the necessity of including psychology in the curriculum of each Australian medical school, of recommending the establishment of a psychological department in every Australian teaching hospital, and drawing the special attention of the medical profession generally to the need for its study and practice in the interests of all concerned. It is an interesting comment upon present apathy in high quarters to find that whilst authorities delay the students themselves are taking action. In our own university the students of physiology have, through their Public Questions Society, voluntarily asked for instruction, and I am at present halfway through a preliminary course on the practice and study of psychology as an introduction to its practical application when they come face to face with their chemical studies. But when will they find a psychological department or teacher? Not, in most cases, unless the authorities are moved.

A CASE OF HUMAN GLANDERS.

BY F. H. JACOB, M.D., M.R.C.P. LOND.

With Pathological Reports by

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THE patient, a man aged 31, was a farmer. He attributed the origin of his complaint to infection from the diseased udder of a cow. The udder of this cow was affected with a series of small lumps, which broke and "discharged water and matter." The man who previously milked the cow had a few places on his arm, said to have been exactly the same as those from which the patient suffered. The patient then took over the milking of the cow; the original milker got quite well, but he himself became infected.

History.

The primary lesion was an ulcer which reached the size of about half-a-crown, discharged a great deal of matter, and took about three weeks to heal. It appeared in August, 1917, and was on the radial border of the right wrist. The patient attributed this to the fact that, as he milked the far nipples, his wrist would repeatedly strike against the diseased part of the udder. This primary lesion was followed by a series of secondary lesions which have continued to come out from that time until his death. They appeared in groups, becoming more and more numerous for about a month, then dying down, becoming very few, then almost disappearing for about 14 days. During the latter part of his illness there was no free interval. The secondary lesions occurred all over him, scalp, face, body, and limbs, but the major incidence was on the limbs, back, and flanks.

Each lesion commenced as a small papule; this rapidly spread, and within 24 hours had increased to about the size of a shilling. It was indurated, and on picking it up between the fingers felt exactly like a typical Hunterian chancre; it was confined entirely to the skin. It had by this time become hæmorrhagic in the centre, giving a purplish-red appearance, the colour of which did not disappear on pressure; around this hæmorrhagic centre was a narrow yellowish ring, marking the indurated margin; beyond this again some œdema, in some instances hardly noticeable, in others very marked, and pitting on pressure. Rapid evolution continued, the yellow indurated margin continuing to spread rapidly, whilst the central area thinned out and became pale brown, and the intervening territory became thickened and mauve from hæmorrhage. Many of the lesions spread in one direction only, tending towards a horse-shoe formation, or more often a scroll arrangement. The total diameter of such a patch was usually 4½ inches at the end of five days. One lesion in the loin reached 9 inches in five days. (Fig. 1.)

It next happened in some areas that new lesions arose in the centre of the discoloured area upon which the lesion had died away, and these in their turn went through the same course, this happening again and again and again. Thus rapid devolution followed the rapid evolution. A week was sufficient for one lesion to run its course, passing over and leaving no induration, but only a stain. Then, in a few days more, the rash would reappear on the old site, and go through the same change as before. The finest and most typical lesions were on the thigh and body. None of the secondary skin lesions ulcerated, except some which appeared soon after the onset of his illness, on the scalp and face. These ulcerated, healed, and left thin white scars. A thicker scar was present on his right wrist, at the site of the primary ulcer.

The process outlined above was modified on the whole of the right forearm, the part first affected. Here the

structure of the skin underwent a slight permanent change, became thinned, and assumed the colour of a very light port-wine stain; the rash here came up with more œdema but was less hæmorrhagic, and, when the plaques were numerous, the arm became very swollen with œdema and somewhat painful. There was no pain or irritation with the rash, but the œdema of the arm was on two occasions sufficiently tense to cause some pain.

Throat.—Towards the end of February, 1918, 14 days before I first saw him, he began to have trouble in his throat. He came under my care early in March; then presented a large thick, hard slough, covering the whole surface of the left tonsil and the left half of the soft palate. There appeared to be deep ulceration of the whole of this area; portion of soft palate had already been destroyed. Anterior margin of

FIG. 1.—Showing skin lesions. The raised margin can almost be seen in the large lesion on the flank.

this slough-covered area of the soft palate showed a raised edge and same hæmorrhagic condition which was present in skin lesion. Odour from throat lesion most offensive. He was admitted to the nursing home on March 13th, 1918, with a considerable portion of soft palate and uvula destroyed. Throat condition spread over whole of soft palate, on to hard palate, buccal surface of cheek, and around some teeth. Very slowly a thick hard slough separated, and ulcerated area finally healed up. A thin flake of bone came away from hard palate. Whole of uvula and a V-shaped portion of soft palate destroyed.

Eyes, glands, temperature, pulse.—Lesions occurred on eyelids, also on conjunctivæ. These were mild in character and caused no permanent damage. Glands in neck and elsewhere, spleen, and liver not at any time enlarged. While in nursing home temperature was raised, varying usually from 100° to 102° F., with only a small daily excursion. Pulse mostly between 100 and 120, of fair quality and regular.

General condition.—Considering temperature, septic throat, and rash, the general condition was fairly good. He could walk about fairly well, was thinner than formerly, but not very thin. No evidence of any lesion beyond those visible on the skin and in the throat. Heart, lungs, abdomen, urine, and nerve reactions all normal.

When he left the nursing home on May 15th, 1918, the last portion of slough on right buccal mucous membrane had just come away, cheek healing nicely. Skin lesions still coming out and dying away, as they had done during the whole two months that he was there and over the same areas. Temperature and general condition unaltered. No pain in swallowing until slough separated, and pain then not severe.

Pathological Investigation.

A recent lesion of the skin of arm of about 24 hours' duration was excised, put in formaldehyde in normal saline, and sent to Dr. Turnbull of the London Hospital, who very kindly sent a report of the microscopical condition found. Dr. Arkwright, of the Lister Institute, made inoculation experiments with the patient's blood, but unfortunately I did not realise that an excised lesion would have been much better for this purpose, and the patient would not consent to our removing a second piece of his skin.

Dr. Turnbull's Report (S.D. 301. 1918).

Macroscopic.—A portion of skin and subcutaneous fat (2·2 × 0·4 × 0·7 cm. deep) in formaldehyde solution. Small hairs scattered over surface. In centre of surface a purple area, 1 cm. long and occupying all the breadth. This area differed in colour only from adjacent epidermis. On cut surface epidermis formed a narrow white line throughout. Dermis was 0·3 cm. deep beneath the purple area on the surface, and decreased to 0·2 cm. on either side. Immediately below purple area a zone of red-brown and red. Inferior boundary of this zone irregular; zone occupied half depth of dermis. Remainder of dermis white. The specimen was bisected. One portion placed in 10 per cent. saline formaldehyde for Levaditi's stain, with a portion of syphilitic liver as a control; other embedded in paraffin.

Microscopic.—Paraffin sections stained by the following methods: Ehrlich's hæmatoxylin and eosin; Weigert's iron hæmatoxylin and van Gieson's mixture; lithium carmine and Weigert's fuchselin; lithium carmine and Weigert-Gram; Twort; Spengler; Unna-Pappenheim. The sections show a portion of skin containing hairs and sebaceous and sweat glands. In centre of portion a conspicuous infiltration of dermis; skin on either side appears normal. Epidermis covered by a horny layer. Small groups of basal cells pigmented. Papillæ throughout few, small and ill-defined. Over infiltrated area epidermis slightly deeper than elsewhere, and infiltrated by a very few neutrophil leucocytes. In infiltrated area relatively little affection of papillary zone of dermis; infiltration intense in upper half of remainder of dermis, and extends downwards in places so as sometimes to reach upward extensions of subcutaneous lipomatous tissue. The infiltration obviously perivascular in distribution, affecting the walls of veins and arterioles and broad zones of tissue round arteries, veins, and capillaries. Tissue of walls of vessels dissociated, extensively necrosed and infiltrated with leucocytes, red corpuscles, and fibrin. In majority of such necrosed vessels lumen narrow and ill-defined owing to these changes in the media; in other vessels lumen distended by leucocytes. Larger arteries unaltered. Zones round the vessels also extensively necrosed and infiltrated with leucocytes, red corpuscles, and fibrin. Elastic fibres in infiltrated areas dissociated and in part destroyed. Nets of delicate filaments of fibrin also present in dermis between perivascular zones of infiltration, and also occasionally in subjacent lipomatous tissue. With the exception of a few eosinophil leucocytes, the infiltrating cells are neutrophil polymorphonuclear leucocytes; the nuclei of many are fragmented.

The histological picture is that of an intense, acute, vascular and perivascular hæmorrhagic necrosis with fibrinous exudation and purulent infiltration. The appearances suggest bacterial embolism, but with the exception of one Gram-positive bacillus in a section stained by the Weigert-Gram method, and one bacillus in a section stained with Twort's mixture, the four methods for the demonstration of organisms proved negative. Numerous spirochætes were stained brightly in the portion of syphilitic liver employed as a control to Levaditi's method.

Dr. Arkwright reported that nothing was revealed by microscope, culture, or inoculation of rabbits or guinea-pigs.

Dr. Dobrashian's Clinical Laboratory Reports.

March 11th, 1918.—Throat swab: Direct films show vast numbers of micro-organisms, chiefly cocci, both Gram-positive and Gram-negative; also bacilli, Gram-positive and Gram-negative (further details not noted). Cultures: Streptococci, Gram-negative bacilli which liquefied gelatin, and a few slender diphtheroid bacilli. Blood: Wassermann reaction negative. Blood count: Red blood corpuscles, 4,700,000 per c.mm.; leucocytes, 22,600 per c.mm.; hæmoglobin, 75 per cent.; colour index, 0·8. Differential leucocyte count of 200 cells; polymorphonuclears, 88·5 per cent.; lymphocytes, 7 per cent.; hyalines, 2·5 per cent.; eosinophiles, 1·5 per cent.; basophiles, 0·5 per cent. Blood cultures: Negative.

March 16th, 1918.—Throat swab (taken from raw surface after removal of a portion of the slough): Grew a pure culture of streptococci only (two strains), from which a vaccine was prepared. Streptococcus: Strain A produced a flocculent deposit in broth, the broth remaining clear; it grew in chain of moderate length. Strain B, a very minute coccus growing in short chains and producing slight turbidity in broth. Strain A caused hæmolysis, whereas B did not. Both produced acid without coagulation in litmus milk, neither reduced neutral red or liquefied gelatin. Strain A fermented glucose, B did not; neither fermented mannite and both fermented lactose and saccharose. Urine: Acid in reaction. No sugar, no albumin; centrifuged deposit showed only a few squamous epithelial cells and amorphous urates. Cultures: *Bacillus coli* and a very small Gram-positive coccus with a tendency to grow in chains and resembling the short-chained streptococcus isolated from the throat.

March 28th, 1918.—Blood cultures: No growth after six days' incubation. Wassermann reaction: Negative. Blood count:

showed a leucocytosis of 19,600 per c.mm., of which 75·5 per cent. were polymorphonuclears.

April 25th, 1913.—Throat swabs: Two were examined for glanders with a negative result. The predominating organism in the cultures was a *Staphylococcus aureus*, with still large numbers of streptococci and a few colonies of *Staphylococcus albus*. The staphylococci isolated from the throat both gave the cultural reactions of a *Micrococcus pyogenes*, one producing orange-coloured colonies and the other white colonies on agar. The only other differences noted were that the *Staphylococcus aureus* liquefied gelatin more rapidly than did the *Staphylococcus albus*, and also produced acid and clotting in litmus milk in 24 hours, whereas the *Staphylococcus albus* did not show this until the third day. The reactions in the sugars were identical, as was also their behaviour in broth, blood broth, and neutral-red broth.

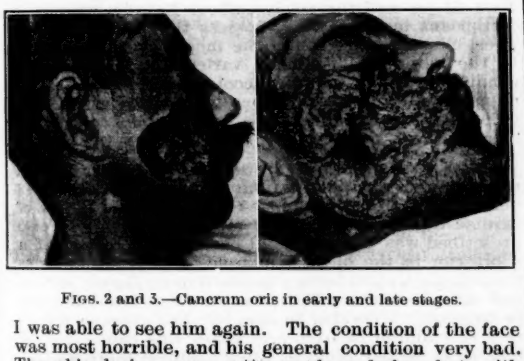
Treatment.

The following remedies were given a thorough trial without effect on the disease. The very frequent attention to his throat, for which the nursing staff were responsible, did, however, avert what appeared to be impending disaster there:—

Liq. ferri perchlor. and pot. chlor. Hydrogen peroxide spray for throat. Hydrarg. perchlor. gargle. Carbolic gargle. Galyl intravenously. Quinine hydrochlor., gr. v. t.d.s. Sodium salicylate, gr. v. t.d.s. Pil. hydrarg. Pot. iodide. Collosol manganese. Ung. hydrarg. nitratis applied to the rash. Antistreptococcus serum. Autogenous streptococcic vaccine.

Further Course of Case.

I heard no more of the patient until September, 1918, when Dr. J. E. Kilvert, of Derby, rang me up to tell me that he had him under his care in the Derby Infirmary. He had been admitted there early in August with a hole through his cheek, showing his teeth from the outside, due, apparently, to a relapse of the condition in the buccal membrane which had developed into a cancrum oris. (Figs. 2 and 3.) Owing to Dr. Kilvert's kindness



FIGS. 2 and 3.—Cancrum oris in early and late stages.

I was able to see him again. The condition of the face was most horrible, and his general condition very bad. The skin lesion was pretty much as before but with less colour in the rash and less induration. Dr. Kilvert also investigated the case with only negative results as had been mine.

The patient died a few days later (Sept. 26th, 1918) and I was privileged in being allowed to be present at the autopsy which, however, showed nothing abnormal in any of the internal organs, with the exception of some small areas in the lungs which appeared to be of the nature of a terminal broncho-pneumonia. Dr. Kilvert very kindly gave me portions of the post-mortem tissues. Some of this material I sent to Dr. Turnbull, and some, together with a sample of the blood, to Dr. Arkwright. The latter reported that his examination was negative from the point of view of finding a causal agent. Dark-ground examination of the serum showed nothing like a spirochæte; cultures, aerobic and anaerobic, yielding nothing hopeful. The post-mortem material gave on culture a *Streptococcus longus*.

TERMINATION[1] OF DR. TURNBULL'S REPORT.

Establishment of the Diagnosis.

The sections of the *skin* show focal areas of acute, purulent, and fibrino-purulent, occasionally hæmorrhagic, perivascular inflammation of the dermis and subcutis. The various cells which have been described as taking part in the infiltration are to be found in inflammations caused by all pyogenic organisms. In cytology, therefore, the lesions are not specific. Compared, however, with that of other purulent inflammations the general picture is remarkable in the following respects: the prominence and severity of vascular, especially venous, affection, the strictly perivascular distribution of the inflammation, the association of conspicuous reaction of the fixed tissue with very great leucocytic infiltration, the striking amount of leucocytic karyorrhexis, and of phagocytosis of leucocytic fragments by free cells of the fixed tissues.

The lesions in the skin contain numerous Gram-negative bacilli of very definite morphological character, and also an occasional Gram-positive diplococcus. The gland from the groin, a gland which would drain the region of affected skin, is acutely inflamed and contains the same bacilli. The palate is ulcerated, and is the seat of a chronic purulent inflammation. Throughout the inflamed palate are similar bacilli, whilst many other organisms lie in the base and on the surface of the ulcer.

Lungs.—Chronic organising fibrino-purulent bronchiolitis and peribronchiolitis; acute purulent bronchiolitis; fibrino-purulent and catarrhal peribronchiolitic pneumonia; slight, acute, serous, fibrinous, purulent, catarrhal, and occasionally hæmorrhagic pneumonia at a distance from the bronchioles; great emphysema, doubtless secondary to the partial occlusion of the bronchioles by organised exudate. The lung contains bacilli similar to those in the skin, and a variety of other organisms. The special bacilli lie for the most part deep in the granulation tissue and tissue of the lung, the other organisms in the air cavities.

Spleen.—A "septic spleen," containing numerous minute focal purulent areas. In these areas and in the remainder of the organ are many of the bacilli; there are also a very few Gram-positive cocci, probably streptococci. The condition of the spleen proves that at the time of death the patient was suffering from a bacteriæmia and pyæmia. This bacteriæmia was mixed. The essential bacteria were the Gram-negative bacilli, but these were combined with a very few cocci. In the skin, the focal and perivascular nature of the inflammation, the necrosis of the walls of small vessels, and the distribution of the organisms permit little doubt that the infection was embolic by the blood stream. Here, again, the bacilli were associated with cocci, but the number of bacilli was in very great preponderance.

There can be no doubt that the patient at the time of death suffered from a bacteriæmia, due to the Gram-negative bacilli associated with a few cocci. The lesions in the lung were in part, at any rate, caused by the same bacilli. So far as can be judged from the sections, the infection of the lung was by inhalation from the palate. Whether the infection of the palate was embolic or not the histology does not indicate. The distribution of the bacilli in the gland in the groin points to the infection having been lymphogenous from the skin lesions of the abdomen and gluteal region.

The lesion in the portion of skin removed on March 18th, 1918 (S.D. 301, 1918), is exactly similar in character to the skin lesions removed after death, save that necrosis of vessels and hæmorrhage are greater than in the severest lesion of the skin (great trochanter) removed after death. In the examination in March I only found one Gram-positive bacillus in a section stained by the Weigert-Gram method, and one bacillus in a section stained in Twort's mixture. In fresh sections stained for 12 or more hours in carbol-thionin-blue I have now succeeded in finding Gram-negative bacilli similar to those in the material obtained after death. The lesion in this portion of skin was caused by the same bacillus, and has the characters of a hæmatogenous, embolic infection.

From the histological examinations, therefore, there can be little, if any, doubt that the patient was suffering from a bacteriæmia not only at the time of death on Sept. 26th, 1918, but on March 18th, 1918. Although a few cocci accompanied the Gram-negative bacilli in the bacteriæmia, there can be no doubt that the lesions were due essentially to the Gram-negative bacilli. From the description given above the resemblance of these bacilli to bacilli mallei is obvious.

Professor W. Bulloch kindly undertook to stain some sections and give his opinion upon the organism. Employing polychrome methylene-blue, differentiated with Unna's glycerine-ether mixture, he demonstrated a very large number of the bacilli in sections from the skin over the great trochanter. In his opinion the morphological characters of the bacilli and their general appearance in the sections were identical with those of the bacillus mallei in lesions proved to be caused by glanders.

Professor Bulloch gave me for comparison a stained section of lesions in the muscle of the leg from a case of proven human glanders. These lesions showed somewhat more prominently the features which I have enumerated in the commencement of the summary as characteristics of the inflammation in the skin: prominence of vascular affection, association of conspicuous reaction of the fixed tissue with very great leucocytic infiltration, a striking amount of leucocytic karyorrhexis and of phagocytosis. With regard to the reaction of the fixed tissue it is important to make it clear that in the sections of the skin and in Professor Bulloch's section the reaction on the part of the fixed tissues was essentially a formation of free mononuclear cells. There was certainly a proliferation of spindle fibroblasts, but a formation of fibrous tissue was not observed. The lesions were focal, acute, purulent infiltrations associated with conspicuous cellular proliferation on the part of the fixed tissues. They were much more akin to abscesses than to chronic granulomata caused by ordinary pyogenic organisms, and they bore no resemblance to the granulomata of tuberculosis and syphilis. Professor Bulloch also gave me a section made by Dr. A. Whitfield of human glanders of the skin. The histology resembled closely that in the skin lesions of the case under discussion.

With regard to the special features of the inflammatory foci in the skin G. Mayer[2] quotes, without reference, Unna and Ehrlich as

[1] The portion of the report which gave a description of the histological changes and of the Gram-negative bacilli has been omitted.

[2] Centralblatt für Bakteriologie, Original-Mitteilungen, 1900, vol. xxviii., p. 673.

having described the following vascular changes in glanders: "The vessels widen, the endothelium swells, the intima in the veins and capillaries is for the most part lost, the lumen is filled with necrosed cell-bodies and fibrin; the muscularis, at first intact, is then infiltrated with leucocytes; the adventitia proliferates; nodules are formed round and close to the thrombosed veins; the nodules may form rings round the vessels. E. Fraenkel[3] lays stress upon the prominence of karyorrhexis: "Diese sich mit Kernfarbstoffen intensiv tingierenden Massen bilden etwas für die Rotzinfiltrate, an welchen Organen immer sie auftreten, Charakteristisches."

The lesions in the present case, therefore, have the histological characters of lesions proved to have been caused by the glanders bacillus; in these lesions are numerous bacilli which have morphological characters identical with those of glanders bacilli.

The clinical history is that of a subacute pyæmia of 13 months' duration. Multiple lesions first appeared in the skin. Deep ulceration of the fauces followed six months later. The course of the disease thus bears a close resemblance to many cases of proven human glanders, as can be seen on reference to the 61 cases of Group A in the analyses made by G. D. Robins.[4] In these 61 cases the nature of the infection was proven by isolation of the bacillus mallei or by animal inoculation. The histological, bacteriological, and clinical evidence, therefore, is all in favour of the case having been an example of human glanders. It is regrettable that the nature of the infection was not proven by isolation of the bacillus or by animal inoculation. For this I am to blame. Had I had any experience of the histological changes caused by the glanders bacillus, the changes in the portion of skin examined in March would have caused me to suspect glanders. More appropriate methods of staining would then have revealed the bacilli, and would have stimulated repeated bacteriological examinations of appropriate material.

Conclusion.

I have to thank Dr. Turnbull for finally discovering the nature of this case. The histological changes in all the lesions of the skin which were examined were so similar and so definite in character that he considers a knowledge of them should go far towards the determination of the causal organism in a similar case. The clinical characters of the case are also worthy of record. The source of infection is still unknown. I have made inquiries from the patient's relatives, his doctor, and his veterinary surgeon, but can get no evidence of anything resembling glanders among his own or his neighbours' horses.

My thanks are due to Dr. Turnbull, Dr. Arkwright, Dr. Kilvert, Dr. Dobrashian, and many others who have given me help in examination of the case.

The accompanying photographs indicate its clinical appearance. The photographs of the ulceration of the cheek I owe to the kindness of Dr. Kilvert.

[3] Deutsche medizinische Wochenschrift, 1916, vol. lxii, p. 1337.
[4] A Study of Chronic Glanders in Man, with Report of a Case. Studies from the Royal Victoria Hospital, Montreal, 1906, vol. ii., No. 1.

EUROPEAN CHILDREN IN THE TROPICAL HIGHLANDS.

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WITH a view to determining the effect, if any, of tropical climate combined with high altitude upon European children, an attempt was made to record normal and abnormal conditions found in the examination of the hearts of 200 school children resident in British East Africa. In order that the result of the investigation might be as accurate as possible the examination was carried out under precisely similar conditions in all cases and the findings tabulated in age-groups, all the children examined were either born in the country or had resided in it for periods varying from 2–10 years, with little or no change to a temperate climate.

Necessity of Investigation.

At the present time, when more and more Europeans are emigrating abroad to our colonies and protectorates, it is of some importance to determine if new surroundings and climatic conditions have any deleterious effects on the health and general physique of the rising generation, compared with a similar generation of children reared in a temperate climate. Only by the study of comparative statistics like these can a conclusion be arrived at as to the suitability of a given tropical country for permanent European settlement.

Whether a tropical country can or cannot be a white man's country has always been a matter of opinion, several circumstances and conditions having to be taken into consideration. The prevalence of disease peculiar to tropical climates, the lack of proper sanitation, the influence of sun's rays and heat in equatorial regions, have all to be considered, and their effects on general health and physique noted, more especially in children, in whom any departure from the normal can be more easily detected.

An extended investigation into the general health and physique is being carried out, and its results will be published in due course. In this paper cardiac conditions only are recorded, as it appeared to the writer that breathlessness and lassitude are two of the most noticeable changes occurring in European children of school age resident in the tropics. Attention was therefore directed primarily to the heart and circulation, in order to find out if these abnormal conditions were due to cardiac defects, or if they could be attributed to other causes. At an altitude of 6000 feet, at which the present investigation was undertaken, the rarefied air and deficient oxygen concentration may be contributory factors, but could hardly be the sole causative agents in these two conditions. Nairobi, being only 3° south of the Equator, might be considered utterly unsuitable for Europeans, but the highlands of East Africa and the country about Nairobi, where the Europeans mostly reside, possess the finest soil, the finest climate, and some of the most beautiful scenery in the world. The climate varies from hot tropical conditions at the coast to cool, or even cold frosty, climate in the higher regions with altitudes of from 6000 to 8000 feet.

Method and Results of Inquiry.

The present investigation was carried out at rest and after exercise on children varying in ages from 7–18 years, and included the pulse-rate, respirations, area of cardiac dullness, and blood pressure. The exercise prescribed was similar in all cases, and consisted of a short run in the open, in a circle of 50 yards' circumference, each child being examined immediately before and after exercise. The pulse-rate was found to vary in frequency according to age, but the average pulse-rate in children of from 7–18 years was calculated at rest to be 87 per minute; after exercise there was an increase in rate of 37 beats per minute, the lowest increase perceived being 19 beats and the highest 49.

Table Showing Average Pulse-rate.

Age.	At rest.	After exercise.	Increase.	Age.	At rest.	After exercise.	Increase.
7	100·0	123·3	23·3	13	83·6	133·3	49·7
8	90·8	109·7	19·0	14	85·7	124·0	38·3
9	91·2	130·0	38·8	15	83·6	131·6	48·0
10	86·1	122·3	36·2	16	88·2	122·0	33·8
11	94·2	133·4	39·2	17	78·0	114·0	36·0
12	88·0	124·6	36·6	18	65·0	100·0	45·0

The time taken for the decrease of the pulse to the normal rate at rest varied, but it was estimated to take 22 minutes on an average. During rest there was no irregularity noted except the normal physiological respiratory irregularity, but after exercise it is interesting to note that 24, or 12 per cent., of the cases examined exhibited some degree of irregularity. In most cases this irregularity consisted of a missed beat with an apparent slowing of the pulse. In others a bigeminal pulse was present for a time. This change in the rhythm of the pulse was more apparent in children between the ages of 9–12 years; after the age of 14 no irregularity was noticed after exertion. The missed beat was so marked in some cases that the pulse-rate counted at the wrist

appeared to be little, if at all, altered from the normal immediately after the exercise, but as the child rested a few minutes the rate resumed its regularity and the number of beats registered far exceeded the rate before the exercise. In two cases with obvious anæmia and a history of malaria the exercise produced a good deal of distress and laboured breathing, necessitating prolonged rest and abstention from any form of exercise during the remainder of the school term.

Area of cardiac dullness.—The area was carefully mapped out before exercise in each case, and in 83 per cent. of the children was found to be within the normal limits—that is to say, the left border of the deep dullness was well inside the mid-clavicular line, the right border to the right of the mid-sternal line, and the apex beat in the fifth interspace, about half an inch inside the mid-clavicular line. In 17 per cent. of the cases there was definite extension of the area to the left, 6 per cent. being well outside the line and 11 per cent. being in the mid-clavicular line or just outside it. It was noticeable that where some irregularity of the pulse occurred after exercise it was not more apparent in those with a dilated heart than in those in whom the heart was normal.

After the exercise it was difficult to demarcate with absolute accuracy the area of deep cardiac dullness owing to the encroachment of the expanded lung over the precordium, but it was estimated that in 97 per cent. of the cases there was no increase in the dimensions of the heart; in 3 per cent. the extent of cardiac dullness was definitely enlarged. In 63 per cent. of the former there was actual constriction of the heart within the limits marked out prior to the exercise test.

Valvular disease.—On auscultation of the heart before and after exercise only three cases showed signs of organic disease. In two the lesion was a mitral regurgitation with a soft systolic murmur at apex transmitted outwards to the axilla. In the third there was definite mitral stenosis with a presystolic murmur. Two of these children were born in South Africa and had a history of rheumatic pains. The third child, presenting a systolic murmur at the apex, was born in East Africa, and had no history of rheumatism or chorea.

Rheumatic fever and chorea, so commonly met with in hospital practice at home, are very rarely seen among children in tropical Africa, and this fact would account for the rarity of organic valvular lesions among school children in this country. It is not uncommon, however, in the routine examination to come across cases which present a systolic murmur at the apex while lying down, which disappears when the child stands up. These subjects present no other evidence of cardio-vascular disease and are healthy in every respect. Such cases are included in the class of functional murmurs and occur more frequently in anæmia following malaria and other diseases. Where there is a definite organic lesion the murmur is accentuated after exercise, but there is no appreciable change in the dimensions of the heart; the pulse-rate is increased by 30–35 beats per minute.

Blood pressure varied from 86 to 110 mm. After exercise it varied from 86·5 to 112 mm., the average pressure at rest being 96 mm. and after exercise 99 mm. The pressure was taken in the recumbent position in all cases before and after exercise by Martin's modification of the Riva-Rocci sphygmomanometer. The average blood pressure was found to be about normal, and after exercise there was a slight but appreciable increase.

Respirations.—At rest the number of respirations varied from 20 to 24 per minute; after exercise it varied from 26 to 29 per minute, the average increase in rate being 8 respirations per minute. The pulse-respiration ratio was 4–1; after exercise it remained practically the same.

Remarks.—The average rate of the pulse from 7 to 10 years of age is 93, from 10 to 15 years it is 86. This result is in practical agreement with the average recorded by Sir James Mackenzie in his book on heart diseases as follows:—

Ages.	Max.	Min.	Mean.
5-10	124	72	93
10-15	120	68	88

The greatly increased rate after exercise is rather striking. Between 7 and 10 years the rate of 93 is increased after exercise to 122. From 10 to 15 years the rate of 86 is increased after exercise to 128.

Importance of Delay in Return to Normal Pulse-rate.

The time taken for the pulse-rate to decrease to the normal appears to be very much longer than that recorded from observations in healthy hearts at lower altitudes in temperate regions. In my series of cases the average time taken was 22 minutes. The delay in return to the rate at rest was not appreciably longer in those with valvular lesions than in others with apparently normal healthy hearts, and there was no evidence of myocardial or other cardiac defects to account for the delay. This delay is of great importance as indicating the amount and nature of exercise permissible for children living at high altitudes under tropical conditions. Although most of the children examined were, up to the time when these observations were taken, allowed to play in the usual school games, it seems from the result of the exercise test that a careful supervision of all games is necessary and only those allowed which are not of an exhausting nature. Generally speaking, the children instinctively avoid indulging in strenuous exercise if they find by experience that the extra strain prevents their enjoyment of the game. The cases which showed some degree of dilatation of the heart as well as difficult and laboured respiration are excluded from all kinds of exercise for a time.

Summary and Conclusion.

Organic valvular disease is rare in children born and reared in British East Africa. Only one child examined was suspected of having an organic lesion, the origin of which could not be discovered. The other two cases gave a history of rheumatic fever in South Africa previous to coming to the country. Definite dilatation of the heart is present in 6 per cent. of cases, and in 11 per cent. the cardiac dullness extends to midclavicular line or just outside. By graduated and carefully supervised exercise the tendency is for these conditions to right themselves in the course of time and for the heart to return to a normal condition.

A NOTE ON

VACCINE TREATMENT IN THE 1918 EPIDEMIC OF PNEUMONIA.

BY H. T. GILLETT, M.D. LOND., M.R.C.S., L.R.C.P.

THERE has been some controversy as to the causal organism in the autumn epidemic of 1918. In November, 1918, I wrote a letter to THE LANCET stating my belief that this organism was a streptococcus. This belief was strengthened by my observation of the effect of a streptococcus vaccine in the severe cases of "influenza," and I give below particulars of eight successive cases of pneumonia. The vaccine I used in these cases was obtained as follows: I was attending a lady who had influenza, and before she had recovered her husband took it; on Oct. 17th I took from his pharynx a platinum loopful of mucus and sowed it on a blood-nasgar slope; this grew a pure culture of streptococcus from which I made a vaccine and sterilised it by incubation for 24 hours after adding 0·5 per cent. carbolic. This vaccine I did not use till about a fortnight later, as there seemed so much uncertainty as to what was the causal organism. I treated my cases with quinine or salicylic preparations. But I was not satisfied with the result, for during that fortnight three of my cases turned to pneumonia, which was fatal in each case (though the last of these was in extremis when I first saw her). My experience was (in the cases which follow) that signs of pneumonia generally did not commence till the fourth to the sixth day of illness. On Oct. 31st I found that a youth was distinctly worse and had signs of pneumonia, so I decided to try a small inoculation of the streptococcus vaccine I had put aside, thinking that if it was not prepared from the causal organism it would do no harm, but that if it was it might do good.

CASE 1.—A youth, aged 17, began with fever and catarrhal symptoms on Oct. 26th. He seemed to go on fairly well till Oct. 31st, when he had a black tongue, was delirious and sick; temp. rose to 104° F. A patch of impaired resonance at the base of the left lung and soft blowing breathing. At 7 P.M. on Oct. 31st I gave him 2 million of the streptococcus vaccine. Towards 4 A.M. he slept, and at 9 A.M. next morning the temperature was 100·8°, he was quite rational, and his tongue was beginning to clear. Temp. fell steadily, and he made a complete recovery. A smear from his sputum contained streptococcus.

CASE 2.—A young woman, aged about 21, began with the usual febrile symptoms on Oct. 26th. Her doctor was taken ill on the

29th, and I saw her first on the 30th. She was then rather blue in the lips and had a great deal of bronchitis. On Nov. 1st her temp. rose to 103° F.; all day she was sick and could take no medicine and little food. Respirations 28; fine crepitations at base of left lung and soft blowing breathing. I gave her an inoculation of 2 million of the strep. vaccine. On the 2nd she had slept better than previously and altogether felt more comfortable; temp. on a lower level, dulness and bronchial breathing over the base of the left lung behind. Dr. Harold Pritchard confirmed the diagnosis. On the 3rd temp. fell to normal, and from that time her general condition continued to improve without a hitch. The sputum smear showed rather short chains of streptococci.

CASE 3.—A youth, aged 18, went to bed on Oct. 17th with the usual symptoms of the epidemic. I did not see him till the 22nd, when he was very hoarse, had a very trying cough, black tongue, diarrhœa, and bronchitis, and was rather blue in the cheeks and lips. He continued about the same till Nov. 1st, when he had signs of pneumonia at base of right lung behind and had blood-stained sputum. At 12 on the same day I gave him 4 million of the strep. vaccine, but at 11.30 P.M. I was rung up because he had a great deal of pain in the back, he had a bad night and next day the temp. was on a higher level and remained so on the 3rd. I think the dose was rather large and there was a negative phase. On the 4th he seemed more comfortable and had slept better. At 5 P.M. I gave him 2 million of the strep. vaccine; he had rather more pain in his back on the right side during the night but next day temp., resp. and pulse were lower, tongue was cleaning, he was less hoarse, and altogether more comfortable. Respiration had dropped from 28 to 26 and the pulse from 96 to 92. Both ears began to discharge. On the 6th the ears were discharging less, he seemed comfortable and had had a good night. I gave him another inoculation of 2 million; he improved during the next few days; the discharge from the ears was diminishing; he slept much better, and by the 9th could turn on the left side; the right lower lobe of the right lung was solid; the sputum was less coloured with blood. On the 10th tongue was almost clean; he was taking his food well; cough was much less troublesome, and he had a solid action of the bowels for the first time. There had been no albuminuria. A little dilation of the heart from the 12th for about a week. A smear of the blood-stained sputum on Nov. 5th showed a lot of streptococcus, medium length.

CASE 4.—A woman, aged 51, who had had double pneumonia a few years ago, went to bed on Oct. 29th, seemed to get on moderately well for the first two days, but respirations then began to increase in rapidity and lips became more cyanosed; began to complain of pain in the left chest; some blood-stained sputum. I could not examine her back as it was too painful to move her. I concluded that she had a pneumonic patch, but the difficulty of breathing suggested some capillary bronchitis. I gave her an inoculation of 2 million strep. vaccine on Nov. 1st, and again on the 3rd, but could see no improvement following. Oxygen did not relieve the breathing. The sputum smear showed streptococcus and many Gram ± cocci in groups, which on culture proved to be *Staphylococcus aureus*. By the time I had grown the culture she was in extremis, and died on the 4th. I think probably this mixture of *Staphylococcus aureus* with streptococcus was the cause of the severity of the case and may have accounted for the failure in treatment.

CASE 5.—A young man, aged about 25, had been discharged from the army on account of his health; had albuminuria. He began influenza on Oct. 29th. I saw him first on Nov. 2nd, when he was spitting up blood-stained sputum, and had an evening temp. of 104° F., so at 8 P.M. I gave him 2 million of the strep. vaccine; half an hour later he complained of pain in the back which continued all night. On Nov. 4th there were fine crepitations at the right base, his sputum smear showed a great deal of short streptococcus, and I got a good growth of the same on blood-nasgar. The urine showed a large quantity of albumin. I gave him another inoculation of 2 million at 10 A.M.; he was delirious all the following night and a little the following afternoon, but temperature and pulse-rate were better on the 5th, and he had eight hours' sleep that night. On the 6th temp. fell to normal, cough was less troublesome, and sputum came up more easily; he also took his food better. Mucous râles over all the chest; impaired resonance at the right base behind with faint bronchial breathing and crepitation at the end of inspiration. Albumin was still present in the urine on the 7th, but about 10 days' later the urine was free. Patient said he had had albumin, or, as he called it, "kidney trouble," from childhood. He made an uninterrupted recovery, and put on 9 lb. in weight. Before his illness he weighed 10 st. 3 lb., and after getting up 10 st. 12 lb.

CASE 6.—A child's nurse, aged 27, went to bed with influenza on Oct. 20th for two days, but got about in the nursery feeling tired from the 23rd to 27th; she stayed in bed on the 28th and 29th, but was up again on the 30th and 31st. On Nov. 1st she woke up about 12 midnight coughing, and she felt she had twisted the left side. On Nov. 2nd she got up and worked, but her side hurt her very much when she coughed. When she began to get up on Nov. 3rd she felt sick, so went back to bed again, and I saw her that afternoon. Pulse was 140, resp. 32, temp. 104° F.; at the left base behind impaired resonance and bronchial breathing. I gave her an inoculation of 2 million strep. vaccine. On the 4th her condition had considerably improved, as shown on the chart by the temp., pulse, and resp. On the afternoon of the 5th temp. was only 100·2°, and she was getting on well, but I gave her another inoculation of 2 million at 3.30 P.M. Within 24 hours her temp. was normal and remained so. On the 8th base of left lung was clearing; there was still some impaired resonance, no bronchial breathing, but slight crepitations. She made an uninterrupted recovery.

CASE 7.—A young woman, aged 27. Was getting on fairly well till Nov. 3rd, when temp. rose to 104° F.; she had signs of a patch of consolidation at right apex in front and at right base behind. On the 4th I gave her 2 million of the vaccine; her temp. fell to normal within the next 48 hours. On Nov. 6th she was very sick after any food, and on the 7th she was fed on white of egg, water, and brandy; pulse very feeble for a day or two; she was also very nervous about herself. On the 10th the right base behind was still dull, with bronchial breathing and crepitations. She recovered completely.

CASE 8.—A man, aged 35. He was attended by Dr. A. G. Fausset. On Nov. 26th the patient had been ill six days; he had signs of pneumonia at the right base, and a temperature of 103° F.; he was then given an inoculation of 2 million of my streptococcus vaccine and his temp. dropped to normal within the following 36 hours. But after an interval of three days it rose again and he developed signs of pneumonia at the left base. I saw him with Dr. Fausset on Dec. 5th; he then had a temp. of 102°, pulse-rate was 120, and the respiration-rate was 50. I gave him 2 million of the strep. vaccine in the afternoon and his temperature steadily fell to normal during the following 48 hours, after this he made an uninterrupted recovery.

Summary.

There were seven recoveries and one death; the death was probably due to the fact that it followed a mixed infection of *Streptococcus* and *Staphylococcus aureus*. In Cases 1, 2, 7, and 8, the temperature fell to normal within the 48 hours following the administration of the first dose of vaccine. In Cases 5 and 6 two doses of vaccine were required before the temperature settled to normal, but Case 5 had albuminuria badly and yet recovered, while Case 6 apparently did not take to her bed till the third day of the pneumonia. Case 3 was a very toxic case; he showed definite improvement three days after the first dose of vaccine which was given on the fifteenth day of illness. The streptococcus grows much better in cultures when blood is present. Is it possible that this may have had something to do with the colour changes after death in that severe epidemic? Would it also explain the severity of attack in the young and full-blooded? The streptococcus loves hæmoglobin and gives rise to hæmolysis.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TWO CASES OF
TRAUMATIC ANEURYSM OF THE LEG.

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THE following cases may prove of interest from their similarity of symptoms and the opportunity they afforded for mistaken diagnosis.

CASE 1.—A blacksmith, aged 57, began to suffer from pain in the region of the right ankle-joint in October, 1919, which was regarded as being of a rheumatic nature, and was eased by bathing and rubbing. The pain gradually extended to the calf of the leg, being most troublesome at night after work, and in the morning. Swelling next appeared about the ankle, and gradually extended up the leg, and pain and swelling became gradually worse until, in March, 1920, patient had to give up work and take to bed. He was admitted to Duke Street Hospital at the end of March. Wassermann reaction was negative. Rest, elevation of the limb, and various applications were tried, but without benefit other than alleviation of the pain. He was transferred to the surgical wards, as the swelling had markedly increased, particularly on the inner side of the calf, where the skin was glazed and tense. The swelling was firm, almost hard, was slightly tender to pressure, and gave no suggestion of pulsation or thrill.

A tourniquet having been applied, the swelling was freely incised, and a very large quantity of clotted blood escaped. Part of the blood clot was firm, fibrinous, and adherent, necessitating digital removal. Examination of the cavity after removal of the clot revealed part of the wall of a small aneurysm at the bifurcation of the popliteal, which had ruptured. The popliteal artery was ligatured in the popliteal space. Patient made a satisfactory recovery.

CASE 2.—A man of 50 was stabbed in February, 1920, with a small dagger which entered his leg below the head of the fibula. His doctor applied a tourniquet to arrest the hæmorrhage, which was profuse, but removed the tourniquet some hours later and stitched the wound, as the bleeding had apparently stopped. The leg swelled considerably and became much discoloured, and patient was confined to bed for seven weeks. He then returned to work as a cart-driver, but pain began in the leg and became gradually more severe, and as the leg began once more to swell he had again to lie up. In August a marked swelling developed in the upper end of the calf, and as this increased and the pain was great he applied for admission to the Royal Infirmary early in September. The swelling, then very pronounced, particularly to the outer side, was firm and tense, and slightly tender on pressure. There was no suggestion of pulsation or thrill. The skin over the swelling was glazed and discoloured. The appearances, apart from the history, strongly suggested sarcoma.

A tourniquet having been applied, the swelling was incised on the outer side, and a very large quantity of blood-clot escaped. In this case the amount of firm, fibrinous adherent blood-clot was

considerable. After the cavity had been cleaned out the posterior tibial artery was found to be extensively wounded just below its origin, and it was accordingly ligatured. Patient is progressing favourably.

Comment.—The impression appears general that a traumatic aneurysm should pulsate, and even text-books state that so long as it is circumscribed it has the same characters as a sacculated aneurysm. In neither of these cases was there the slightest pulsation, and, no doubt, partly on this account diagnoses of rheumatism and sarcoma were suggested. In a third case, that of a Boer who came under the writer's care during the South African War, the condition was similar, and a mistaken diagnosis was made. He had been wounded by a bullet in the thigh, and a hard swelling developed thereafter, which was diagnosed as fracture of the femur with excessive callus formation. The gradual development of the swelling is another point calculated to cause error in diagnosis, particularly when it is preceded by pain.

I am indebted to Dr. W. A. Walker, resident surgical officer at Duke Street, for notes on the history of the first case. It will be noted that no history of injury was obtained.

A NOTE ON

POLYA'S OPERATION UNDER LOCAL ANÆSTHESIA.

BY S. T. IRWIN, M.CH.BELF., F.R.C.S. EDIN.

THE ease with which this operation was performed and the surprisingly good condition of the patient afterwards lead me to report the case.

On July 7th, 1920, I was asked by Dr. W. Speedy, of Rathfriland, to see D. C., aged 68 years. The latter had complained for some weeks of intermittent attacks of vomiting. For six months he had been losing weight and colour, and for the last fortnight had been confined to bed.

On examination there was a large, freely movable tumour to the right of the middle line about the level of the umbilicus. The tumour was not attached to the liver, though it moved with respiration. Pulse and temperature normal and general condition fair. A history of recurrent attacks of bronchitis, but heart and lungs otherwise normal at time of examination. Owing to the history of bronchitis, the man's age, and his general condition it was decided to explore the abdomen under local anæsthesia; if removal of the growth was then decided upon, the latter was to be done under open ether anæsthesia.

Anæsthesia.—The patient was therefore removed to a nursing home and the operation took place on July 15th. An injection of ½ gr. morphia with 1/150 gr. atropin was given three-quarters of an hour before operation and another of ⅓ gr. morphia just before the patient was placed upon the operating table. Novocain was the local anæsthetic—2 per cent. for abdominal wall and 1 per cent. for the peritoneum. In all about 10 gr. of novocain were used with about 20 minims of 1 in 1000 adrenalin chloride (P., D. and Co.) solution. The first injection aimed at anæsthetising the skin, subcutaneous tissue, anterior rectal sheath, and muscle.

Operation.—The incision was 5 in. long and went through the right rectus muscle 1½ in. from the middle line. Then the posterior rectal sheath and peritoneum were injected and divided.

A tumour, the size of the closed fist, was found involving the pyloric end of the stomach. It was very freely movable. There was but one enlarged lymphatic gland lying below the greater curvature. The liver was free from palpable secondary involvement. It was therefore decided to proceed to a partial gastrectomy by Polya's method, and to go on as far as possible under the local anæsthetic. The gastro-hepatic omentum was therefore injected with 1 per cent. novocain solution. The duodenum was divided between clamps and the distal end invaginated. The pylorus was lifted up, and its peritoneal attachments ligated along the lesser curvature as far as the left coronary artery and along the greater to a distance well clear of the growth. Search was now made for the first part of the jejunum. This was the only manœuvre which caused the patient to make any complaint of pain; the latter was due to the enormous size of the dilated stomach and consequent low position of the transverse colon. Having identified the origin of the jejunum, the transverse mesocolon was anæsthetised and incised over it from the front, the jejunum drawn freely through it, the stomach clamped well above the growth, and another clamp placed upon an ample loop of the jejunum. The stomach and jejunum were joined together by a Lembert suture of No. 1 (30-day) Luken's catgut. The lower end of the stomach was removed and the jejunum incised. The through-and-through line of suture of the same catgut was introduced and the Lembert line completed. A few interrupted sutures to join the great to the small omentum sufficed to finish the abdominal portion of the operation.

Closure of the abdominal wound called for no comment beyond that it was accomplished without pain and was accompanied by frequent expressions of relief on the part of the patient to find that the operation was completed and that he had not been unconscious.

Notes on the Operation.

1. *Conduct of the patient.*—His eyes were covered during the operation by a piece of gauze and he was engaged in conversation from time to time. Neither by his voice, nor by his respirations, nor by movement, did he indicate distress at any part of the operation, except that when we were pushing up the transverse colon to look for the jejunum he said it hurt him. This, however, lasted only for a moment or two.

2. *Shock.*—The pulse, from being 80 coming on the table, rose to 110 after the patient had been returned to bed. Otherwise he showed no sign of shock. His voice was as strong and his colour as good when he left the operating table as when he was placed on it.

3. *Vomiting.*—He vomited one mouthful only of bile-stained fluid the day after the operation.

4. *Food.*—Teaspoonfuls of soda bicarbonate and water were allowed from the first, and a pint of normal saline was administered four-hourly by the rectum. After 48 hours peptonised milk and water were given freely by the mouth; 24 hours later tea, chicken soup, beef tea, and bovril were given; and at the end of the week small quantities of spoon diet.

5. *Micturition.*—Patient passed urine himself the night of the operation.

6. *Progress.*—The morning after the operation the pulse was 60 and the temperature 98° F. The highest temperature subsequent to the operation was 98·8°. The patient left the nursing home on the eighteenth day on ordinary diet.

Conclusions.

Polya's operation is one which lends itself to local anæsthesia rather than does such an operation as posterior gastro-enterostomy. The requirements for employment of local anæsthesia are gentle handling, absence of hurry, and, even more important, the coöperation of a skilful assistant. In the latter respect I was much indebted to Dr. R. J. McConnell, who discharged this duty without reproach.

A CASE OF

DEVELOPMENTAL TRACHEO-ŒSOPHAGEAL COMMUNICATION.

BY E. R. ORMEROD, M.B. MANCH., M.R.C.S.,

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THE following case appears to me worthy of record:—

The patient, H. C., aged 1 week, male child, was admitted to Manchester Children's Hospital under Dr. H. T. Ashby on August 18th, 1920. The child was brought with the history of having been breast-fed from birth and that the milk seemed to lie "at the back of the throat," none having been swallowed. On attempting to feed, the child became cyanosed and the milk was coughed back. Also, a bulge was said to form at the right side of the throat externally. During the week of life the baby had passed several stools, probably composed of meconium. The patient was a first child and born at full term.

On examination the child weighed 5 lb., appeared well developed, but under-nourished. No developmental defects were discovered. The sequence of events on feeding occurred as stated in the history, and a soft bulge appeared at the right side of the neck below the level of the larynx. An attempt was made to pass a gum-elastic bougie, which came to a stop five inches from the gums. The larynx appeared normal to the finger. A diagnosis of congenital occlusion of the œsophagus was made, and it was decided to do a gastrostomy for feeding purposes. At operation the stomach was normal. The child died on the fourth day after vomiting followed by asphyxiation. A post-mortem examination was made, the stomach, œsophagus, trachea, and larynx being dissected out whole.

Pathological Note.—The larynx was normal. The opening of the œsophagus posterior to the larynx passed down immediately into a pouch lined by normal œsophageal mucous membrane. The pouch, which was evidently the upper end of the œsophagus, was blind, and it lay in the middle line, its length being 1½ inches. This evidently on distension with milk formed the bulge already referred to. The trachea length 2½ inches passed down the middle line, and bifurcated normally into the two bronchi, but the tracheal rings were only half complete round the anterior part of the tube. Tracing the œsophagus up from the stomach it was seen to run directly into the trachea; in fact, it formed the posterior half of the trachea, so that this common tube was formed in front by cartilaginous rings, and behind by all coats of œsophagus, including mucous membrane. The posterior wall of the tube was therefore completely formed by œsophagus and the anterior wall by trachea.

A photograph which was taken elucidated this description, and it was evident that the child vomited into the common tube and thus asphyxiated himself, curds of milk being found in the larger divisions of the bronchi.

PROPOSED AMALGAMATION OF WEYMOUTH HOSPITALS.—A meeting was held recently of the friends of the Weymouth Royal Hospital when a resolution in favour of the amalgamation of the Weymouth hospitals was passed. On Oct. 15th a meeting of the subscribers to the Princess Christian Hospital, Weymouth, was held, when it was unanimously agreed that the meeting "approves of the scheme for the amalgamation of the Princess Christian Hospital and the Weymouth Royal Hospital." The wish was expressed that the Weymouth and Dorset County Eye Infirmary would also join the scheme. It is estimated that a saving of about £2000 a year will be effected by this amalgamation.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

A MEETING of this section of the Royal Society of Medicine was held on Oct. 26th, Dr. A. F. VOELCKER, the President, being in the chair, when Dr. F. PARKES WEBER read a paper on

The Differentiation of the Secondary Forms of Polycythæmia Rubra

(Excluding merely Transient or Local Increase in the Erythrocyte Count) from Erythræmia or Primary Myelopathic Splenomegalic Polycythæmia Rubra.

Dr. Parkes Weber said it was open for anyone to maintain that all cases of polycythæmia rubra were examples of erythrocytosis, and were results of an erythroblastic reaction towards the exciting action of some (known or unknown) "agent." He wished to classify into five divisions certain conditions, accompanied by erythrocytosis, which might be mistaken for polycythæmia rubra of unknown cause, apparently due to primary hyperplasia of the erythroblastic tissues. The first class was the so-called polycythæmia hypertonica or hypertonia polycythæmica (Geisbock, &c.) In these cases there was no obvious splenomegaly and the systolic pressure was high, whereas in true erythrocythæmia, uncomplicated by chronic interstitial nephritis, the blood pressure was usually not high. The second class was splenomegalic polycythæmia rubra connected with tuberculosis of the spleen. Tuberculosis in the spleen usually caused enlargement of the organ, and this, together with tuberculous erythrocytosis, could quite well occasionally give rise to the clinical and pathological syndrome of splenomegalic polycythæmia. Splenectomy was usually followed by increase of the erythrocyte count, and conversely a temporary decrease of the erythrocyte count by subcutaneous injection of a protein-free splenic extract had been experimentally produced. The third class was secondary polycythæmia rubra (of longer or shorter duration) with splenomegaly, connected with a condition of visceral blood stasis of chronic thrombotic origin in the splenic and portal veins. The splenomegaly of chronic non-suppurative pyle-phlebitis or rather of obstruction due to chronic thrombo-phlebitis in the portal vein or its tributaries was not generally associated with a high erythrocyte count. Moreover, the polycythæmia rubra, when it did occur, was often present only for a period and probably gave rise to a normal erythrocyte count later on, or to an anæmic condition with actual oligocythæmia rubra. In the latter event the clinical diagnosis was not unlikely to be "splenic anæmia" or Banti's disease. Patients with obstructive splenomegaly of this kind might live for a relatively long time. There were usually intervals during which they seemed fairly well except for the splenomegaly, but relapses were likely to occur sooner or later and hæmatemesis supervene. Splenectomy was contra-indicated whatever the blood count. The fourth class was chronic "cardio-pulmonary" cyanosis with secondary polycythæmia rubra ("Cardiacos negros" of Ayerza, Ayerza's disease, or Ayerza's syndrome). The condition occurred mostly among Hebrews, generally males, between 30 and 50 years of age. They suffered from chronic cyanosis, varying in degree, with marked dilatation of the capillaries and venules of the face, often associated with diffuse bronchitis, pulmonary emphysema, dilatation of the right side of the heart, and passive congestion of the liver. The spleen could seldom be felt. The secondary polycythæmia might be considerable. Of some diagnostic importance was the fact that the cyanosis and erythrocytosis might exist for a long period before the patient's death. The clinical symptoms and signs should help the observer to differentiate Ayerza's syndrome from cases of true erythræmia. The fifth class was secondary polycythæmia rubra connected with congenital or acquired heart disease. The cyanosis, due chiefly to stasis, was the main factor in exciting the erythrocytosis. The spleen was seldom palpable. As well as these main groups of secondary polycythæmia rubra, which should always be kept in mind in regard to the diagnosis of erythræmia, there were certainly other varieties.

Transient Polycythæmia in a Child.

Mr. D. H. PATERSON contributed the notes of a case of polycythæmia in a child under the care of Dr. H. Thursfield.

The child, now 2 years old, came first under observation when aged 10 days for œdema of the feet. At the age of 11 months her spleen was noticed to be enlarged, and it rapidly increased in size until it reached for three fingers-breadth below the costal margin. She was admitted into hospital at the age of 1 year 8 months for wasting. She was rachitic, and both liver and spleen were enlarged. During the first week after admission the child had 20 somewhat loose stools and lost nearly a pound in weight. At the end of this week the red blood corpuscles amounted to over 7,000,000 and the white to 38,000. During the second week 27 stools were passed, and the red cells rose to 9⅓ and finally to 12 millions. The loss in weight was nearly 3 lb. in a fortnight, or 16 per cent. of the total body-weight. During the third week there were 15 stools; the weight remained low, but the red cell count was 7¼ millions. During the fourth week there were 11 stools; the weight increased slightly and the red cells were stationary. During the fifth week there was a sharp gain in weight. During the sixth week the diarrhœa recurred and the red cells rose to 8 millions. During the seventh week the diarrhœa again improved and the red cells dropped to 6 millions, the weight remaining stationary. During the twentieth week the red blood count was 7½ millions, hæmoglobin 90 per cent., weight 17¾ lb.

The notable points of the case were: (1) The red cell count was at no time below 6 millions. (2) Observers gained the impression that the child passed an abnormally large quantity of urine, though it was impossible to get a 24 hours' specimen. (3) She was never cyanosed, but usually had a pallid, muddy complexion, with at times a little colour. (4) Her hæmoglobin value ranged between 65 and 90 per cent., rising and falling with the red cells. (5) There was a steady fall in the number of white cells from 38,000 to 16,000, the differential count remaining normal. (6) Her spleen, which became palpable and enlarged at 11 months, was still enlarged at the present time. (7) At 10 days old her feet were œdematous, and she had had recurrent attacks of this ever since, one (in hospital) coinciding with an attack of diarrhœa. He contended that the erythrocyte count of 6 millions was the normal count of a healthy child of the same age, and not 5 millions as is usually stated.

SECTION OF UROLOGY.

A MEETING of this Section of the Royal Society of Medicine was held on Oct. 28th, with Sir PETER FREYER in the chair, when Sir THOMAS HORDER read a paper on

The Treatment of Subacute Nephritis by Decapsulation.

In reviewing the progress of the operation since it was first used in 1896, he remarked how in the earlier cases only puncture of the kidney was performed, later a simple incision was made; from this the practice, first of partial, and then of complete, decapsulation was developed, and drainage was abandoned, the organ being returned to its bed and the wound closed. In the earlier cases only one kidney was dealt with at one time, in later instances both were decapsulated at the same operation. In these early cases the exact nature of the renal lesion was not clearly defined. He then described in detail four cases of decapsulation from his own experience. The first two were cases of subacute nephritis with marked œdema, massive albuminuria with casts, and toxic symptoms, but showing only slight signs of cardio-vascular changes. One patient was treated for 12 months by the energetic medical measures usual in such cases, but without success. Sir D'Arcy Power then decapsulated both kidneys, and at once the amount of urine increased and became normal, the œdema disappeared and the albumin lessened. The other patient showed a similar clinical state which did not respond to seven months of clinical treatment, but improved at once after decapsulation. Four and a half years later

neither patient showed any sign of disease. The other two cases, in which there was evidence of cardio-vascular changes, improved somewhat after decapsulation, but were not cured. He considered from a study of his own cases and those described in literature, that the operation is most likely to be useful in subacute nephritis, and that it is contra-indicated in advanced granular kidney. In acute nephritis with anuria and uræmia puncture or incision may be justified. Little is known concerning the mechanism by which the immediate results of decapsulation are brought about, the permanent effect may depend on the formation of new vessels; the striking immediate effects are probably due to direct drainage of the kidney into the perinephric cellular tissue.

In the discussion Sir D'ARCY POWER said that the results of decapsulation in chronic interstitial nephritis in old people were poor.—Mr. FRANK KIDD described four cases upon which he had operated, one was cured, two seemed likely to be cured, one had relapsed. He considered that the operation relieved lymphatic obstruction by allowing lymph to drain away into the perinephric tissues.—Dr. LEWIS SMITH agreed that the operation was most successful in subacute nephritis. He raised a question as to whether changes in the fundus oculi were a contra-indication to operation.—Sir NESTOR TIRARD considered the results to be poor when there was advanced cardio-vascular disease.—Dr. G. EVANS urged that in future operations a piece of the kidney should be excised for microscopic examination in order that cases might be classified pathologically, as had been done in one of Sir Thomas Horder's cases.—Dr. GEORGE GRAHAM pointed out the need of chemical tests of renal function before and after operation.—Mr. GWYNNE WILLIAMS described three cases in which he had operated. One had died after only one kidney had been decapsulated, and the two organs had been compared post mortem.—Sir PETER FREYER described a case.

Mr. VICTOR BONNEY read a paper on

Transperitoneal Nephropexy.

He had performed this operation in 20 cases with good and apparently permanent results. In one case a further laparotomy had been necessary four years later for other reasons, and the kidney had been found firmly fixed. The abdomen is opened anteriorly, an incision along the outer border of the rectus being most convenient. The stomach and intestines are packed away by swabs and the posterior parietal peritoneum is opened by a curved incision over the lower pole of the kidney. After the perirenal fat has been separated the lower pole of the kidney is pulled downwards and forwards and fixed by three silk sutures passed through its substance, and through the psoas muscle or the aponeurosis derived from the psoas parvus which usually covers it, the kidney being thus brought into contact with these sutures. The peritoneum is closed and the abdominal wound sutured. He considered that the abdominal route gives good access to the kidney, and allows it to be examined thoroughly with the other contents of the abdomen, thus ensuring that nephropexy will not be performed in cases where disease of other abdominal viscera has produced symptoms simulating those of movable kidney.

In the discussion Mr. THOMSON WALKER considered that the kidney, being only fixed at its lower pole, might tilt forwards. There was also, perhaps, danger of injury to the ureter.—Mr. A. E. WEBB-JOHNSON considered that the lumbar approach allowed of a better examination of the kidney and ureter, and that by it alone could firm fixation be assured.—In reply Mr. VICTOR BONNEY said that latterly he had not detached any capsule from the kidney; that the kidney is accurately fixed in a vertical position, and does not topple over.

SCHOOL OF PHARMACY AT EXETER.—The inaugural address of the School of Pharmacy in connexion with Exeter University College was recently delivered by Mr. P. F. Rowsell, F.C.S., a member of the Council of the Pharmaceutical Society. The school was opened with Government assistance in 1919, and has now 40 students, many of whom are ex-Service men.

MEDICAL SOCIETY OF LONDON.

DETERMINATION OF DEGREE OF RENAL FUNCTION.

A MEETING of this society was held on Oct. 25th, Sir WILLIAM HALE WHITE, the President, being in the chair, when a discussion on this subject was opened by Professor J. B. LEATHES. His paper appears in full in the front of this issue.

Discussion.

Dr. LANGDON BROWN said that the diastase output, the urea concentration, and the albumin to globulin ratio in the urine constituted, in his opinion and that of his co-workers, the best method of estimating total renal efficiency in medical cases.

Estimation of diastase in the urine.—Normally the amount of diastase should vary between 10 and 22 units, though 33 was not definitely abnormal. The unit depended on the amount of urine required to digest 2 c.cm. of a 0·1 per cent. of starch solution in half an hour. If renal permeability was damaged the diastase might fall to 5 units or less, and perhaps to zero. The method was found to be of distinct prognostic value, for those cases of nephritis with a normal diastase output generally recovered quickly, while those with a low value ran a more protracted course, and showed a tendency to relapse. In some cases this low value persisted after the albuminuria, and they found that a case of acute nephritis could not be said to have recovered until the diastase output had returned to normal. In toxic albuminuria, on the other hand, the diastase output tended to be too high, and this served to distinguish such cases from true nephritis.

Estimation of urea output.—Estimation by Dr. H. MacLean's method of testing the urea concentration was found to be of undoubted value. This test consisted in the determination of the percentage of urea in the urine 1 to 2 hours after the ingestion of a known quantity—15 g. of urea. There had never been any untoward results, though caution had been exercised in its use in acute nephritis. Ordinary estimations of urea output were of no value in determining renal efficiency. Within wide limits the amount of urea in the urine depended upon the amount of protein in the food, and in nephritis the protein intake was usually reduced.

Albumin to globulin ratio.—This ratio might be expressed as follows:—

	Albumin.	Globulin.	Diastase output.
Nephritis	6	1	Low.
Functional albuminuria ...	2	1	Normal.
Leaky kidney	1	2	Normal.
Toxic albuminuria...	2	1	High.

In nephritis, as in every other disease, the result of one test alone was not sufficient, but if this tripod of signs—diastase, urea concentration, and albumin to globulin ratio—were all bad, the outlook was bad; if, however, even one of these was favourable we should avoid a pessimistic outlook, since such cases sometimes improved remarkably; while if they were all good the prognosis was also good. The relative significance of the three tests might be expressed thus: the diastase output afforded some indication of the power of the kidney to excrete colloids, the urea concentration of its power to excrete crystalloids, while the albumin to globulin ratio afforded some measure of the degree of active inflammation. Further, their results suggested that cases with a good urea concentration were those in which a high protein diet such as Epstein's could be safely given, with a reasonable prospect of relieving the dropsy.

Dr. MACKENZIE WALLIS said that as a result of an extensive series of investigations of all types of renal disease he had come to the conclusion that there was no one test so far devised capable of giving the necessary information as to whether the kidneys were functionally active. The three which he had found most reliable were: (1) the diastase content of the urine; (2) the urea content of the blood; (3) the urea concentration. By means of the first two tests it was possible to determine the degree of renal impairment with fair accuracy and then to use the simple urea-concentration test to confirm the findings of the other two. In collaboration with Dr. Langdon Brown and Dr. J. W. Trevan he had carried out an investigation on the so-called trench nephritis. Using the first two tests named above, they had come to the following conclusions. The urea content of the blood varied with the severity and duration of the disease, and a rise in the blood

urea corresponded with a fall in the diastase content of the urine. As the condition improved the diastase in the urine returned to the normal values before the fall in the urea content of the blood. This urea retention was found to correspond exactly with the retention of nitrogen. These two tests were therefore useful, not only for purposes of diagnosis, but also for prognosis, and their general adoption was urged. Identical results were obtained in scarlatinal nephritis. Later Dr. MacLean obtained equally successful results in trench nephritis, and added another useful and valuable test, the urea-concentration test. The most interesting results were obtained in the maternity department of St. Bartholomew's Hospital. Albumin in the urine during pregnancy was of frequent occurrence, and every case was investigated when it was detected. The application of these tests had enabled them clearly to differentiate between parenchymatous nephritis in pregnancy and albuminuria due to toxæmia, and to reduce the mortality from toxæmias of pregnancy to nil. In the toxæmias of pregnancy the blood analysis showed normal figures, but the diastase content of the urine was markedly raised, values of 100 to 200 units being obtained instead of the normal 10 to 22 units. In parenchymatous nephritis of pregnancy the blood urea was usually raised and the urinary diastase very low. The urea-concentration test had also been tried, but the results appeared to be identical in the two conditions. A large number of cases of the chronic interstitial type had been investigated, with the result that they relied on the tests enumerated to base an opinion on the functional activity of the kidneys. From the point of view of the surgeon the question of renal function was one of great complexity, for his aim was to determine the degree of mechanical damage to the kidney, and in this many of the tests failed. The diastase activity was a reliable guide, however, as shown by a case described. Blood analysis had not been of much value in cases of enlarged prostate, since the results nearly invariably fell within the normal limits. The phenol-red test had also been tried in such cases, but the results did not agree with the clinical condition nor with the ultimate issue. Thus, cases showing clinically very definite disturbances of renal function had given a favourable phenol-red test, whereas those with good drainage and no definite evidence of renal insufficiency had yielded results with this test which could only be regarded as indicating that they were unfavourable cases for operations.

Mr. THOMSON WALKER said that it was vital to the subject that we should constantly keep in mind the objects for which the testing of the renal function was carried out. In surgery we must keep in view many factors that the physician might neglect. These were the effect on the renal function of shock produced by an operation, the effect of an anæsthetic, the destruction of kidney tissue by incising the kidney, and the removal of secreting kidney tissue by nephrectomy. The main interpretations for which renal tests were used in urinary surgery were as follows: (1) In obstruction or septic disease of the lower urinary tract, the state of the renal function; (2) in disease of one kidney, (*a*) the degree of impairment of renal function of the diseased kidney, and (*b*) the state of function of the second kidney. The methods which he, personally, used were: phenol-sulphone-phthalein, indigo carmine, blood urea and urine urea, and urea concentration. He insisted upon the constant and imperative necessity for observing the clinical symptoms. The value of these symptoms was greatest where the kidney disease was an offshoot or a sequence of disease of the lower urinary tract and therefore affected both kidneys. The clinical symptoms of urinary obstruction in their early and slight forms must be sought for and given their due weight in the estimation of the renal function.

Phenol-sulphone-phthalein.—This test was introduced by Dr. L. G. Rowntree and Dr. J. T. Geraghty in 1909, and consisted in the injection into a vein or into a muscle of 6 mgr. of phenol-sulphone-phthalein, and estimating by means of a colorimeter the quantity of the dye passed in the urine in the first two hours after injection, and the time of the first appearance of the drug in the urine. Phenol-phthalein possessed advantages over other dyes which had been used in similar tests in that it did not form a chromogen like that of methylene-blue, it was excreted wholly by the kidney, and slight variations in shade were more easily detected than were those of the blue dyes. It possessed certain disadvantages. In the presence of blood or bile in the urine the colour was masked, but the urine might be decolorised of its bile or blood pigments by means of animal charcoal, or they might be precipitated by addition of acetate of lead. Great care was required in the preparation of phenol-phthalein and in keeping it in phials of non-alkaline glass. With regard to all such colour tests of the renal function it was assumed that there is a parallelism between the excretion of the dye and the function of the kidney to excrete urea or other nitrogenous bodies, for in cases of disease of the kidney where the urea function was impaired the excretion of the dye was also diminished. His experience with this test had, on the whole, been satisfactory. It was certainly the best of all the colour tests, and, except where the urine contained blood or bile, he had had no difficulty in estimating the percentage of the dye in the urine with the simplest form of colorimeter. The indigo-carmine test had the disadvantage that the dye was excreted by other organs than the kidney, and therefore no exact estimate could be made of the quantity excreted for comparison with the quantity introduced into the circulation. As a rough test of the renal ability to excrete dyes it was, however, useful. Its special advantage was that the deep blue colour was readily seen on inspection of the ureteric orifices by means of the cystoscope, the method introduced by Friedrich Voelcker and Joseph as chromo-cystoscopy. The presence of a functioning kidney was thus quickly proved. He thought that this dye was less ready than phenol-phthalein to act in parallel lines to the urea function and that a too optimistic view of the state of the kidney might be taken.

Urine-urea and blood-urea.—The production of urea in the body and its appearance in the urine were dependent on extrarenal factors that were difficult to control. As the methods of estimation of blood-urea had become more accurate the value of this examination had come to be recognised. It was instructive to compare in the same case the blood-urea and the urine-urea and thus obtain information with regard to the excretory power of the kidney where the percentage of urea in the blood was known. The formula known as Ambard's coefficient was introduced in order to present these figures systematically and to correct them for certain factors such as the ratio of body-weight, the quantity of urine excreted, time of collection, &c. In the grade of surgical kidney disease where information with regard to the renal function was really useful the estimation of the blood-urea did not usually show an increase, but where destruction of the kidney tissue was advanced and where it affected both kidneys, urea began to accumulate in the blood and an increase over the normal limit of 40 mg. in 100 c.cm. was found. When this had occurred in surgical cases the condition of the patient was usually such that no doubt could be entertained as to the diagnosis of uræmia. The cases in urinary surgery where the estimation of the blood-urea had been most useful were those in which it was already known that the kidneys were damaged, but complications, such as persistent vomiting, and drowsiness after an anæsthetic, had arisen, which might be ascribed to other causes than uræmia. A pronounced rise in the blood-urea in such cases would indicate that the complications were due to renal inefficiency. An increase in the blood-urea might be found, apart from renal inadequacy due to disease of the kidneys, in pneumonia, some cases of syphilis, goitre, anæmia, septicæmia, and some forms of meningitis; and such temporary conditions as feebleness of the circulation might affect the output of urea from the kidney without any renal disease being present.

Urea concentration or forced elimination of preformed urea.—This test consisted in administering a large dose of urea in solution by the mouth. This was absorbed and the blood was overloaded with urea. The urea in the urine was estimated and the capacity of the kidney to excrete urea was thus measured. One great advantage of this method was its ease of application, but this must be combined with reliability if it was to be accepted as trustworthy. Two fallacies were already apparent: (1) the percentage estimation of urine-urea in forced urea elimination was not reliable when polyuria was present, and (2) the presence of large quantities of blood in the urine tended to vitiate the figures.

Fallacies in Tests of Renal Efficiency.

In all tests of renal efficiency in urinary surgery there were certain fallacies.

(1) The kidney did not, under ordinary conditions, put forth its full power of action, the reserve of kidney tissue in the normal individual amounting to over 50 per cent. It was this reserve power which was so difficult to estimate by any of the renal tests. Surgical disease might trench on this

reserve until none of it was left, but the renal tests might show that a normal renal function was being performed. Albarran recognised this difference between the actual and the potential renal function many years ago, and tried, by the production of polyuria, to force the kidney to exert its full power of elimination. He established the rule that a diseased kidney had a more uniform function than a healthy kidney, and its function varied less from one moment to another the more extensively its parenchyma was destroyed. In other words, the diseased kidney was working at its full capacity all the time, and had a constant output of medium or low value, whilst the function of the healthy kidney varied within wide limits. He looked upon the examination of the course of the renal activity as a valuable indication of the functional power of the kidney, and he tested it by giving diuretics in combination with tests of the renal efficiency and observing the variation of the function. The forced elimination of preformed urea and its measurement at two-hourly intervals, as recommended by McCasky, was a further attempt to overcome this difficulty.

(2) The temporary reduction of function that might be brought about by reflex and other influences, such as occurs as the result of obstruction by an enlarged prostate. The removal of the obstruction in such a case would be followed by an improvement in the renal function which could not be measured beforehand. Yet upon this improvement might depend the progress of the patient after he had survived the removal of the obstruction. Again, in the case of disease of one kidney the function of the second kidney might suffer depression from changes in its substance, but the depression of the function of the second kidney might be partly or even wholly due to reflex influences passing from its diseased neighbour.

(3) It was impossible to judge before operation how far hypertrophy would compensate for the reduction of kidney tissue produced by nephrectomy. Tuffier had stated that if parenchymatous nephritis was present hypertrophy did not take place. In estimating the prognosis in cases of chronic renal inefficiency, when the cause of the inefficiency had been removed, the possibility of the formation of a reserve of kidney tissue by hypertrophy must be borne in mind in estimating the value of reports on the renal function by the tests mentioned.

Mr. F. KIDD said that the laboratory tests which were capable of giving accurate findings should always be correlated with the clinical features. Those which he had found most useful were (1) the excretion tests in which he preferred the use of indigo-carmine to that of phenol-phthalein, (2) the electrical resistance test, and (3) the retention test. He thought that all quantitative tests of the urine would prove fallacious when the urine was drawn off by catheter, and were of little value in surgical cases. The time tests were more reliable, and especially the use of dyes. Whatever tests were employed, they should be interpreted by the clinician. It was extraordinary how prostatectomy results could be improved by careful preliminary testing, and doing the operation in two stages when this was indicated.

Dr. H. MACLEAN said that the amount of protein in the urine was very little indication of the renal efficiency, and in his experience the relative amounts of albumin and globulin had often proved a fallacious test, but one which was useful in younger people. Casts were indicative of renal disease, but even if many were found the kidneys might prove functionally effective for as long as 20 years. When the renal functions were very inadequate all the information necessary could be obtained by the estimation of the urea in the blood, but in such cases the clinical evidence alone was sufficient. The intermediate group of cases was that in which special tests were required. His routine now was first to test for protein and casts, next to do the diastase test and the urea-concentration test. This could all be done within two or three hours, and the time factor was of great importance. He had found that the estimation of urea in the blood was unnecessary. The difficulty of polyuria was not a very real one and could easily be surmounted. When 100 mg. of urea were found to 100 c.cm. of blood death from uræmia could be anticipated if the patient were operated upon. The results to be expected in surgical cases were different from those in medical, even with the same findings by tests. In surgical cases the renal efficiency was not incapable of recovery, for with some delay the urea content of the blood dropped sufficiently to render an operation safe.

Dr. W. H. WILLCOX considered that for different varieties of kidney disease different tests were most suitable. In medical nephritis colour tests were very unreliable, but he considered the urea-concentration test and the diastase test both valuable. He did not think that sufficient stress had been laid on the estimation of the chlorides in the urine. In nephritic cases chlorides were much reduced, more particularly in parenchymatous nephritis. When they were under 4 per cent. one could anticipate renal damage and loss of function. This applied also to surgical cases. The blood-urea test was useful in the presence of the likelihood of uræmia supervening. First in order he would put clinical symptoms, and second diuresis with known amounts of fluid, a test especially valuable in connexion with functional damage, such as that caused by shock or chloroform.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

THE opening meeting of this society was held at the Norfolk and Norwich Hospital on Oct. 12th, with Sir HAMILTON BALLANCE, the President, in the chair.

Mr. VICTOR BONNEY delivered the annual address on

THE PRESENT POSITION OF MIDWIFERY.

He said that he was dissatisfied with the present position of midwifery. He considered that the artificial separation of obstetrics from medicine and surgery was extremely harmful. Obstetrics had been made into a sort of close borough, and medical students became imbued with the idea that it was essentially different from other branches of the profession.

The Lying-in Room in the Middle-class House.

Mr. Bonney gave a graphic and humorous description of the ordinary lying-in room in the average middle-class house. He depicted the large double bed filling up most of the room, the dressing-table with cheval-glass blocking out the light, and littered with toilet articles, hair-brushes, wisps of hair, and the husband's shaving utensils; a large wardrobe in one corner, and a bookcase containing a few dusty books in another, &c. In such surroundings lay a woman who would probably require a surgical operation. When called to such a case his practice was to "clear the decks" and remove at once all unnecessary impedimenta. Why did such conditions exist? The answer was, because the public did not think very much of child-birth, or of the man who conducted it. They regarded it as relatively unskilled work, and failed to realise that child-birth was a process carried out for the benefit of the race at the expense of the individual. The public took its tone from the doctors, who derived theirs from the students, and they in their turn from the teachers. The teachers of midwifery were fundamentally responsible for the present state of affairs. Obstetrics ought to be looked upon as a branch of surgery, as it was in its essence mechanical, and had to be treated by operation and not by drugs. The only drugs, in fact, that were of any use in midwifery were ergot and pituitrin. It should be remembered that the product of conception began as a new growth; in the early stages the edge of a growing ovum could not be differentiated from a commencing chorion-epithelioma. In fact, we had all of us begun life as little malignant tumours. The problems connected with midwifery were nearly all surgical problems. Delivery was an operation, and when a woman brought forth a child without assistance she operated on herself. In the present state of knowledge there was no specific treatment of abnormal pregnancy beyond its mechanical removal. For these reasons he advocated the conception of midwifery as a pure surgical art. Midwifery was taught and practised to-day very much as when he was a student, though there was a certain stirring of the stagnant water observable which he hoped would lead to better things.

Causes of Death in Child-birth.

The maternal death-rate had altered little in the last 70 years. In 1850 the death-rate of women due to child-birth in England and Wales was 5·5 per 1000 births; in 1880 the rate was 4 per 1000; in 1892, 5·7; and in 1917, 4·8. Puerperal sepsis was responsible for between one-fourth and one-third of the deaths. Scotland had been going downhill in this respect, and the figures for 1915 gave the death-rate due to child-birth as 6·1 per 1000 live births, rather more than one-third of the deaths being due to puerperal sepsis. In England in 1915 there was 1 death for every 250 registered births, 1 in 191 in Ireland, 1 in 179 in Wales, and in Scotland 1 in 175. After puerperal sepsis the other most important causes of death were pregnancy toxæmia and hæmorrhage. Nearly all these causes of death were theoretically and even practically preventable, but there was very little improvement shown at present.

There was surely something radically wrong in the conception and teaching of midwifery. Amendment was to be sought for in its recognition as a branch of surgery. It should be taught, practised, and paid for as surgery. He was shocked to hear what the average fee for attendance in confinements was in Norwich, and felt that the public should be made to understand that good work in midwifery could not be expected unless it was properly paid for. With the recognition of midwifery as a branch of surgery the student would exchange nebulous ideas for clear-cut thought and action. The present extern midwifery departments should be abolished. They perpetuated in a student's mind all the worst forms of practice, so that when he found things on embarking in private practice to be much the same, or even a little better, he was apt to adopt a *laissez-faire* attitude, which reacted on the mind of the general public.

Antiseptic Measures in Midwifery.

The speaker then went on to discuss the comparative failure of antiseptic treatment in midwifery, contrasted with the brilliant results obtained in surgery due to the principles and practice of Listerism. Antiseptic measures had been used in midwifery for years, but the mortality from puerperal sepsis had hardly diminished. Epidemics of puerperal fever such as used to occur in pre-antiseptic days had happily been abolished, but sporadic cases kept turning up, and at present about one woman died of it for every 700 live births. Severe illness short of death was much commoner, four or five women becoming seriously ill of sepsis for every one that died. To explain this contrast it must be noted that there were two sources of infection of wounds: (1) Extrinsic infection from organisms introduced from without by means of hands, instruments, &c.; (2) intrinsic infection from organisms developed in the patient's own body. Experiences during the war had added much to our knowledge on this subject, as it had been found that the vast majority of organisms causing wound infection were of fæcal origin. In surgery the fight against extrinsic infection had been won, but the fight against intrinsic infection was not finished yet, although great success had been achieved, as it was an extremely difficult thing to sterilise the operation area in some situations. Now in midwifery we were still in the first surgical phase. We exercised elaborate precautions against extrinsic infection by the use of rubber gloves, antiseptics, &c., and had done so for years, yet puerperal fever showed little diminution. Most of the cases of puerperal sepsis were due to the entrance of intestinal organisms into the uterus. The way that these organisms got into the uterus had been shown by the experiments of Bond of Leicester, who found that particles of indigo introduced into the vagina appeared after an interval in the Fallopian tubes. He explained this as due to the fact that there was an upward current along the walls of the vagina and uterus.

Puerperal sepsis of intrinsic origin was a new doctrine. But it was not so comforting to the practitioner as might be thought at first sight, because it implied a failure of technique, the commonest way in which the organisms were carried into the vagina being on the hands or instruments of the obstetrician. The prevention of intrinsic infection was a very difficult matter. The problem was to sterilise the birth area and to keep it sterile, and the peri-anal skin was a very highly infected region. He found that the best method was to apply a solution of violet-green to the peri-anal skin and to the vagina. When instrumental delivery was necessary he stitched a pad soaked in one of the modern antiseptics over the anus, so as to exclude all bowel organisms. He considered it imperative that in all operative labour the patient should be placed in the lithotomy position. In the old-fashioned position, with the patient on her side, the operator's hands and instruments had to pass over the dangerous anal region before reaching the vagina, thus increasing the risk of conveying infection. Vaginal examinations should be reduced to a minimum. Eardley Holland had pointed out that the presentation and degree of dilatation of the cervix could be well detected by rectal examination.

Three Conditions in Labour Operations.

In the conduct of labour as a surgical operation there were three imperative conditions: 1. Suitable environment. 2. An independent anæsthetist. 3. Adequate assistance. To carry out operative midwifery properly four people were required—the operator, the anæsthetist, and two nurses. In his opinion the recognition of midwives as persons competent to conduct labour independently was a retrograde step. A midwife and a doctor should be in attendance on every case.

With regard to the other serious complications of midwifery, the conception of pregnancy as a neoplasm was necessarily followed by the appreciation of the fact that the patient should be kept under close supervision, so that by the examination of the urine, &c., eclampsia and other forms of pregnancy toxæmia might be prevented, or at all events treated in time. The introduction of Cæsarean section as the treatment of placenta prævia had altogether changed the picture and enabled one to face this dangerous complication with equanimity.

Conclusion.

How were the ideals with which his address was concerned to be achieved? In the first place the public had got to pay properly for midwifery, and would do so when sufficiently educated to consider it as a branch of surgery. He would like to see large lying-in institutions established all over the country. The Obstetrical Section of the Royal Society of Medicine had made important suggestions as to the better education of medical students in midwifery, and the Advisory Council of the Ministry of Health had made the following suggestions: 1. That a doctor and midwife ought to be available for every case of confinement. 2. That there should be beds for lying-in cases at all primary health centres. 3. A proper system of supervision of pregnancy. 4. An arrangement by which poor people should be able to obtain a sterilised outfit for confinements free of charge, if unable to pay for it. 5. At every secondary centre there should be a motor ambulance available to bring surgeon, anæsthetist, nurse, and surgical outfit to any woman in labour requiring their services.

A hearty vote of thanks was passed to Mr. Bonney for his interesting and instructive address, which was discussed by the PRESIDENT, Dr. COOPER PATTIN, Dr. A. CROOK, Dr. H. WATSON, Dr. MUIR EVANS, Dr. DONALD DAY, and Dr. W. WYLLYS.

LIVERPOOL MEDICAL INSTITUTION.

THE first ordinary meeting of the session was held on Oct. 28th, when Mr. F. STRONG HEANEY reported a case of

Pathological Dislocation Forward of the Atlas.

He also showed skiagrams illustrating the position of the bones before and after postural treatment. The patient was a boy of 19. The symptoms on which the diagnosis had been made were occipital pain, rigidity of the neck muscles with prominence immediately beneath the occiput, and difficulty in deglutition. The cause of dislocation was obviously tuberculous disease, which had caused yielding of the atlo-axial connexions. An antero-posterior skiagram taken through the open mouth showed some lateral deviation of the odontoid, probably due to unequal yielding of the atlo-axial ligaments. The treatment in the first place consisted in placing the patient supine and supporting the cervical spine forward by means of a rounded wooden support. The weight of the head as it hung over this support, dragged back the atlas into position and produced immediate relief of symptoms. The prognosis in atlo-axial disease, if detected in time, was good. If not detected, the condition was apt to end fatally and suddenly, by compression of the medulla by the odontoid. Photographs and diagrams illustrating the condition were shown.—Dr. W. C. ORAM explained the radiogram and referred to the difficulty of getting a photograph through the mouth owing to the mechanism used for immobilising the neck. A film was utilised instead of a plate for the purpose. The film, being flexible, could be moulded to the curve of the pillow and was thus in contact with the back of the neck.

Dr. R. W. MACKENNA read a paper on

Some Experiences in the Use of Colloidal Preparations,

based on two years of clinical observation. After a short review of the history of colloidal medication and of the character and methods of preparation of colloidal solutions, he proceeded to detail some interesting observations. His conclusions were that in colloidal solution of manganese a very remarkable addition has been made to our equipment for dealing with suppurative processes, while colloidal sulphur may claim certain advantages over any other preparation of sulphur available in therapeutics. He did not think that colloidal preparations of silver possessed any special advantages over the older preparations of silver. Colloidal copper he had found to be quite useless in cases of inoperable malignant disease, and he was firmly persuaded that colloidal mercury would never displace the other forms of that drug. Colloidal iodine had certain advantages. In the concluding part of his paper he sought to throw some light on the obscure cause of the peculiar therapeutic properties of colloidal preparations. Dr. Mackenna was of opinion that much of their value depends on the state of extremely fine division in which the particles of the "disperse phase" are found. This affords relatively to the mass of the drug employed an enormous surface-area for contact between the tissues and the remedy, and at the same time supplies to the system a depôt of medicament from which slow, constant, and progressive absorption in the form of true solutions may take place.

Reviews and Notices of Books.

WARFARE IN THE HUMAN BODY.

By MORLEY ROBERTS. London: Eveleigh Nash. 1920. Pp. 286. 18s.

THE author of this suggestive volume is an experienced novelist as well as a keen student of sociology and of a good many other things. Arriving at the notion that the pathology of human societies and the pathology of individuals may profitably illuminate one another, he has produced a series of essays on malignancy, inhibition and the cardiac vagus, the theory of immunity, heredity and environment, and so forth, which castigate the dogmas of the medical profession so gently and misrepresent the position so amiably that we lend a ready attention to his suggestions for reform and progress. He is provocative, and illustrates admirably the way in which an amateur can bring a clarifying stimulus into more orthodox scientific circles. He sees from outside, for example, that specialism has come to be a very real hindrance to progress; the pathologist pours scorn on the physiologist, the physiologist ignores the biologist, and the biologist knows nothing of what the pathologist has to tell him. In "Repair in Evolution" this is developed more fully, and the author argues that the partial failure of organs and their subsequent restoration may have been responsible for a number of advances in structure in the animal series. He realises, too, more plainly than many medical men, that the changes which are the subject-matter of pathology for the most part tend to salvation rather than death. But why the strange title? Can it be that pathology has failed to convince Mr. Roberts that it is love that makes the world go round; yet compensation is the most complete demonstration that bearing one another's burdens is a first-rate plan of social life?

TROPICAL OPHTHALMOLOGY.

By ROBERT HENRY ELLIOT, M.D., B.S. Lond., Sc.D. Edin., F.R.C.S. Eng. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 525. 31s. 6d.

IF this book has one paramount object, says the author in the preface, it is to stimulate the young worker to play a man's part in the far-off lands to which opportunity has led or necessity has driven him. It is in no sense a comprehensive text-book of ophthalmology, but, on the other hand, it supplies just that supplementary amount of knowledge which an ophthalmic surgeon with the ordinary experience of temperate climates would find necessary on taking up a practice in the East. The subjects treated of include the effects of glare and dust on the eyes; injuries inflicted by insects and by an appalling variety of parasites—a few of which the Western practitioner has just heard of, but the majority of which he has not; and the ocular complications of several general diseases relatively common in the East. A good deal of space is devoted to the subject of cataract—some thirty pages to a description of the Indian operation of couching and its disastrous results, a subject which the author has made peculiarly his own; and another section to a full account of the operation of extraction as performed in the Government Ophthalmic Hospital at Madras. The advice as to selection of cases, preparation of the patient for operation, asepsis, and general arrangements is just that which a surgeon new to the country will be glad to have. The actual technique of the operation is described in a chapter written by Lieutenant-Colonel H. Kirkpatrick.

Throughout the whole book the reader is conscious that the special conditions of the tropics and of India are never lost sight of. Thus, in a chapter on Hospital Management the reader who finds himself in the position of superintendent of an Eastern hospital is adjured to respect caste punctiliously, but to exercise a careful and tactful supervision over every detail of hospital management; to learn all he can of native customs, of lucky and unlucky days and hours, and of good and bad omens, and, as far as possible, to respect the prejudices founded on such beliefs; to know how to do the work of every man who is employed under him, from the highest to the lowest, so that he can teach him to do it aright; to do nothing himself which he can get equally well done for him by someone else; and, finally, to learn the language thoroughly and study through it the habits and customs of the people for whom he is working.

We welcome the book as one which covers a good deal of new ground, and inasmuch as Eastern diseases are always liable to occur in a sporadic form in the West we recommend every ophthalmic surgeon to read it.

ÉLÉMENTS DE RADIOLOGIE.

Second edition. By Dr. E. ALBERT-WEIL, Chef du Laboratoire d'Electro-radiologie de l'Hôpital Trousseau. Paris: Felix Alcan. 1920. Pp. 890. Fr.40.

ON the appearance of the first edition of this excellent work it was our pleasure to recommend it to all those interested in radiology who wished to improve their knowledge by becoming familiar with the ideas and best practice of French radiologists. There is even more reason why they should study the second edition. The subject has advanced so far in the interval that the author has rewritten most of what was in the original edition, as well as adding a large amount of new material to bring it up to date. The author's easy style and facility in description makes for pleasant reading, and the illustrations and diagrams are all that one could desire. The volume covers the whole subject of the applications of the X rays to medical purposes, instrumentation, diagnosis, and treatment. All the latest appliances are shown and described in detail, including methods of measurement. The section on the digestive system is particularly good and the therapeutic applications of the X rays are dealt with in a very comprehensive manner. It is unfortunate that the radiographs illustrating the work have had to be reproduced on the same paper as the text, but their inherent excellence makes up to a great extent for this disadvantage. Dr. Albert-Weil is to be congratulated on keeping the book within reasonable bounds by resisting the temptation, to which so many authors succumb, to include a section on radium.

THE MAMMARY APPARATUS OF THE MAMMALIA.

By ERNST BRESSLAU, M.D. London: Methuen and Co. 1920. Pp. 145. 7s. 6d.

THE lectures which form the basis of this volume were delivered by Professor Bresslau in London in 1913. The great reputation enjoyed by the author as an authority on this subject makes the issue of the book one of peculiar interest, fully borne out by its perusal. Professor Bresslau had the enviable opportunity of examining Semon's collection of Echidna embryos, and was thus able to discredit Owen's description of paired mammary pouches in this animal, showing that these have no existence in the fœtal or in any other stage. This, of course, also renders untenable Klaatsch's theory of the formation of the incubatorium in the brooding female. By examination of embryos the author demonstrates that the earliest rudiment of the mammary organs in the Monotreme (Echidna) is a distinct epithelial thickening with subepithelial cell condensation, and that this precedes the development of the incubatorium, which he appears to regard as produced mechanically. Thus the ontogenetic history is regarded as disposing of Ruge's view that the mammary glands were secondary developments in the incubatorium. Professor Bresslau considers that these mammary rudiments—his primary-primordia—represent "rudiments of organs which long ago in the ancestors of the Echidna took the place of the later gland areas." These organs he recognises as being "analogous in nature to the so-called Brutflecken or brooding-spots, such as are seen in many birds." The rich blood-supply of these spots would favour the development of tubular glands in the regions; presumably the mammary hairs would owe their appearance to the action of the same causes, and their functions, like that of the increased secretion, would be a secondary adaptation. All this, of course, is pure

speculation, as must also be any explanation offered for the want of an incubatorium in the aquatic Ornithorhynchus, or for the relative primitiveness of the different conditions found in the land and water monotremes; but the views advanced by Professor Bresslau have the value of his considered authority, and are in accord with developmental findings.

Marsupial embryos show the same primary-primordia, and it would seem that the nipple rudiments develop directly from these epithelial thickenings, and are in fact their sole remnants. The author goes into the question of nipple arrangement in the Marsupials, and makes the statement, probably new to most anatomists, that there is really an arrangement of nipples in four rows in the Didelphyidæ. In these animals he shows that the unpaired central nipple is ontogenetically formed by fusion of paired structures. The development of marsupial pockets round the nipples takes place by the hollowing out of epithelial ingrowths, with subsequent flattening of their inner walls, whence we reach the evident conclusion that the pouch of the Marsupials differs essentially from the incubatorium of the Monotremes: the marsupial pouch of common knowledge is made by conjunction of these "pockets" derived from epithelial growth, the whole formation probably originated within the limits of the marsupial series, and the pouchless Didelphyidæ appear to be—as Bensley suggested in 1903—the most primitive of the series.

With regard to the author's views on the higher mammals, it is enough to say that he throws more than doubt on the Gegenbaur classification of nipples, and, in short, maintains the direct connexion between the placental mammary organs and those of the primitive Didelphyidæ. This, of course, implies that such things as pouch rudiments need not be looked for among higher mammals, for they are outside the line of evolution: they must not be confounded with the embryonic nipple pouches found in the Placentalia. The general conclusions to which Professor Bresslau has been led by his researches make him a strong supporter of Huxley's conception of the phylogeny of the Mammalia, and he connects the Monotremes and Marsupials only by a common Prototherian ancestor, the connexion between Marsupials and Placentals being, similarly, by an original Metatherian stock. This book should be read by any student concerned with the questions of evolution in the mammals, and Professor Bresslau, in founding his opinions on the facts of embryonic development, has presented arguments of much greater weight than could be possessed by those based on the findings of comparative anatomy alone.

JOURNALS.

Journal of the Royal Naval Medical Service.—In the journal for October Surgeon Rear-Admiral P. W. Bassett-Smith reports on six cases of anthrax (four deaths) in 1919. Several of these cases in their onset closely resembled cerebro-spinal fever; anthrax bacilli were found in the cerebro-spinal fluid on lumbar puncture. Five of the cases were due to infected shaving brushes. Temporary Surgeon-Lieutenant S. L. Baker discusses the pathology of the 1918 outbreaks of influenza as seen at Haslar Hospital at Portsmouth. During 1916 a long-chained hæmolytic streptococcus began to be found in empyemata, and in 1917 in cases of purulent bronchitis, which were mentioned by contributors to THE LANCET.[1] The bacillus influenza was not found till after Matthews's paper on the advantage of trypsinised blood in media for the cultivation of the bacillus had appeared.[2] Surgeon-Lieutenant Baker concludes that the *Bacillus influenzæ* is the foundation of the epidemic, but that it was the presence of the hæmolytic streptococcus that made the autumn epidemic so dangerous. Post mortem the bacillus is found in the least damaged parts of the lungs. The broncho-pneumonia is streptococcal and superimposed on an influenza-infected lung. With this there is often a hæmorrhagic and œdematous exudate into the lung substance; sometimes so much hæmorrhage occurs into lungs and bronchi that the patient drowns. In a report on influenza in the war it is stated that influenza began in the Grand Fleet in April, 1918; the first ship to be attacked was the *King Orry*, but whence the infection came is not stated. Death-rates varied. In one battleship 10 per cent. of the cases died. It would be very instructive if the death-rates for the various classes of ships were worked out and published. In spring there were 10,313 cases in the Grand Fleet of 90,000 men, but only four deaths. The autumn epidemic came from Portsmouth, and caused in the Grand Fleet fewer cases, 5381, but the deaths, 80, were more numerous.

Late Temporary Surgeon-Lieutenant H. H. Gellert tells of typhus on the Caspian at Petrovsk, where Bolshevism has come as a climax to much internecine warfare and has prevented any attempt at rational self-government by the poor people who now, in poverty, filth, and starvation, barely exist. He had medical charge of an Air Force section, and protected them by a disinfector on the lines of Lieutenant-Colonel Stammers's Balkan barrel. The thirst of the patients is mentioned and the need for rectal or intravenous saline. From Novorossisk, at the west end of the Caucasus, Surgeon-Commander H. Hunt also complains of the prevalence (100,000 cases) of typhus through the disorganisation born of war and revolution in South Russia. H.M.S. *Emperor of India* carried 2000 Don Cossacks from Novorossisk to Theodosia in the Crimea; they had few cases of typhus, but all suffered severely from thirst, and as soon as they had a drink they fell asleep. A working party had to be sent to a merchant ship to disinfect her after carrying refugees, as her own sailors refused to do it.

An interesting announcement is made in this number of the journal. A new order was issued in July whereby 46 naval surgeons can now be paid 2*s.* 6*d.* daily if appointed specialists in anæsthetics, ophthalmology, ear and throat, genito-urinary and venereal disease, physical training, bacteriology, or pathology. Surgeon lieutenant-commanders who pass their promotion examination with special certificate gain 18 months' earlier advancement. Patients on leave from naval hospitals will, in future, wear uniform with a light blue band above the left elbow. Volunteers for sick berth staff are called for from amongst engine-room artificers and others in the service, not seamen. Endeavour is being made to secure that King Edward VII. Hospital for officers shall continue.

The Biochemical Journal. October, 1920. Vol. XIV., No. 5. Cambridge University Press. 14*s.* net.—In an interesting note on the Nomenclature of the So-called Accessory Food Factors, Dr. J. C. Drummond draws attention in this number to the desirability of dropping the final "e" in the word vitamine, for as he does well to point out, the termination "ine" is one strictly employed in chemical nomenclature to denote substances of a basic character, whereas there is no evidence which supports the idea that the accessory food factors are amines. This suggestion would fall into line with the nomenclature adopted by the Chemical Society. It is further usefully suggested, we think, that the cumbrous terms fat-soluble A and water-soluble B should be dropped, and that the substances be referred to as vitamin A, B, C, &c. This plan should be quite sufficient until such time as the factors are isolated and their true nature identified. In another paper in the same number by Dr. Drummond and Katherine Hope Coward it is insisted that in testing food-stuffs for the presence of the fat-soluble vitamine in control experiments the greatest care should be devoted to ensuring that the basal dietary is rendered as free from this factor as possible. Details for ensuring the freedom of the ration are given, and it is pointed out that failure to work with a sufficiently pure diet may clearly lead to conflicting and inconsistent results. Further researches by the same authors show that nuts, generally speaking, possess a relatively low food value as sources of vitamine A often associated with fats, and the results also furnish additional evidence in favour of the theory that this vitamine is formed in the green part of the living plant and is not stored to any appreciable extent as such in the seed and other resting tissues. The same authors show in a third paper that one or two members of the vegetable oil series—e.g., palm oil—may show accessory factor activity. There seems little doubt that the presence of the fat-soluble factor in animal fats is largely influenced by the diet of the animal, and processes of preparation and refining may play a part in diminishing the potency of the factor.

In the same number R. H. A. Plimmer contributes a Note on Scurvy in Pigs. The animals under observation had been fed on cooked food and developed symptoms strongly suggesting scurvy. The change to uncooked food improved their condition and growth, though the food consisted of the same materials. Under this modified diet they fed well and flourished, particularly when the proportion of raw turnip (swede) was increased.

Finally, an interesting paper appears by D. Margaret Adkins on the Digestibility of Germinated Beans. From the experiments carried out, using trypsin as the hydrolytic agent, the protein of germinated beans is clearly more digestible than the protein of ungerminated beans. This result would appear to mean that germination starts the hydrolytic process. It may be recalled that, further, germinated beans possess marked antiscorbutic value.

[1] THE LANCET, July 14th and Sept. 8th, 1917.
[2] THE LANCET, June 27th, 1918.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 6, 1920.

Hospital Principles.

THE Ministry of Health (Miscellaneous Provisions) Bill will come up for consideration in Parliament quite shortly, possibly before these words reach our readers; and there are signs that a good many amendments may be pressed seriously upon the attention of those responsible for the measure. It is always inconvenient when medicine, in any of its phases, becomes a contested subject in the House of Commons, because the pros and cons have to be debated in an audience where party expediency must, in existing circumstances, have great influence, while medicine itself owns no allegiance to party—or, rather, is above all party. The scope of the Bill, however, is so large that many clauses offer chances of differing opinions, without either side being other than a friend to medicine, and, indeed, without any medical points arising for discussion. Moreover, the Parliamentary Medical Committee has now come into existence, and through it lay legislators can obtain a concrete medical opinion from doctors who are in touch at many and various points with professional opinion. To two clauses in the impending Bill we draw attention now, as great medical principles are involved in them and no less great public issues.

Clause 11 of the Ministry of Health (Miscellaneous Provisions) Bill is giving rise to a great deal of anxious thought in the medical profession. This is the clause which permits the larger local authorities to provide hospitals and ambulances. County or County Borough Councils, or the amalgamated Councils of two or more counties, may, under this clause, supply and maintain hospitals, including out-patient departments, for the treatment of general or particular pathological conditions, and may undertake the maintenance of any Poor-law hospitals or infirmaries within their areas contributing or maintaining also ambulance service. The clause is permissive and there is no onus on any authority to assume these responsibilities; this must be stated and reiterated in order to guard against the suggestion that it is the policy of the Bill to destroy, through this clause, the voluntary system of hospital support. The Councils may contribute "on such terms and conditions as may be approved by the Ministry to any voluntary hospitals or similar institutions within their area"; that is a further point to be remembered. But those who believe, with the majority of medical practitioners, that the splendid work of the voluntary hospitals, pathological, educational, and humanitarian, is distinctly threatened under this clause, are naturally up in arms against it, fearing lest a permissive concession may be translated in too many instances into municipal routine. The City Council of Bradford has anticipated the Bill and taken upon itself the powers granted by the clause. The experiment, if approved, will be watched eagerly both by medical men and laymen, because undoubtedly, if it is a success, the Bradford example will be followed; but we have suggested already, in discussing the question at large, that success at one place, supposing it comes, would not ensure similar success elsewhere. If a City Council, mistaking the character of its constituency—in other words, not being representative of its area—should impose a municipal hospital on the rates where it is not wanted there will be trouble with the ratepayers and trouble with the medical profession. The chances of success or failure at Bradford can be gauged to some extent by the local circumstances, which have been detailed recently in two clear articles by Dr. CHARLES BUTTAR in the *British Medical Journal*. In these articles Dr. BUTTAR takes a distinctly adverse view of the chances of success even at Bradford, we say *even*, as the city as well as its Council is credited with progressive tendencies of an advanced pattern. The voluntary system is directly challenged at Bradford, which already possesses in its Royal Infirmary a first-class hospital, maintained on a charitable basis and staffed by medical officers of high merit, selected on the usual plan. For the Royal Infirmary there had been planned before the war a scheme of addition and reconstruction which had proceeded to the extent of the purchase of a site, and the progressive efficiency could be confidently expected which goes hand-in-hand with better material opportunity. At the same time Bradford possesses a Poor-law infirmary capable of extension and much improved during its recent occupation for military purposes. This Poor-law institution comes under the description of those which it is proposed to improve under Clause 11 of the forthcoming Bill, the intention of which is to enable municipal bodies to supplement the voluntary hospitals where necessary and to put to useful employment the vacant beds in Poor-law institutions. But pertinent questions arise. Will the municipal scheme, necessarily costly, stop the flow of subscriptions and donations for the betterment of the Royal Infirmary? Will the new municipal hospital be conducted in direct rivalry with the Royal Infirmary? Will the corporate energy of the city be directed towards the former institution, and so detach substantial blocks of subscriptions from the latter? Will the City Council, having a municipal hospital to support, contribute, as Clause 11 permits it to do, to the voluntary hospitals within the area? These appear to us to be the points in the Bradford departure which require close attention in the light of the general principles involved. Further, the scheme put forward at Bradford for the administration of the municipal hospital can hardly be expected to receive medical support when there is no provision for hearing the medical views on such points as the selection of the staff, the prevention of hospital abuse, and the establishment of a block for paying patients. We hope that the approval of the Minister of Health will be withheld until the whole medical side of the scheme has been scrutinised. However the money for the maintenance of a hospital is raised, its administration should agree in essentials with the views taken in the Dawson Report. Medicine has certainly no claim, and no desire, to dictate, but its opinion must be taken into account as to hospital developments, if only to secure some uniformity in public medical service.

Clause 10 of the Ministry of Health (Miscellaneous Provisions) Bill[1] is also one by which an

[1] The clause will be found set out in full in THE LANCET, August 21st, p. 423.

important section of medical work is affected. This clause concerns the treatment of incipient mental disorder and we need not recapitulate the reasons for revising the whole machinery dealing with the subject. The clause, in the absence of special legislation, is an endeavour in the right direction. It is acknowledged that at the present time the medical profession is quite unable to take preventive measures against mental disorder in its incipient stages. There is no legislation to meet the points which may arise, and there is no proper provision for the patients. Clause 10 meets in a general way these deficiencies, but it requires amendment. For example, the removal from its benefits of any person who has been certified under the Lunacy and Mental Deficiency Acts excludes relapsed cases, and these form a very amenable class for treatment. Moreover, the requirement of the written consent of the patient, together with the certificates of two medical practitioners, while recalling the formalities of the Lunacy Acts, may defeat the main purpose of the clause, for the unwilling patient—unwilling because of his mental condition—may be the exact person for whom an approved and properly supervised institution would be recommended by that patient's medical adviser. It should also be made clear whether the voluntary principle can be extended to the mental hospitals, still usually known as borough and county asylums. We hope that the mental hospitals, particularly those connected with the university and teaching centres, will be conducted in regard to their selection of staff and internal administration on the principles that prevail at the teaching institutions, and the relations which exist between the Board of Control and the Ministry of Health ought to make it easy for the clause to be satisfactorily amended in the indicated manner.

The Reading of a Charter.

THE charter of the Pharmaceutical Society, granted in 1843, recited that certain persons had formed an association for the purpose of advancing chemistry and pharmacy and of promoting a uniform system of education for those practising these crafts. A further avowed aim was the protection of those who carried on the business of chemists and druggists, and the provision of a fund to relieve distressed Members and Associates, their widows and orphans was also contemplated. The Pharmacy Act 1852 provided for the appointment of a registrar and for the keeping of a register, and, subject to certain variations in detail, confirmed the charter of 1843. For nearly 80 years the Pharmaceutical Society, as is well known to everyone, has performed with distinction the rôle assigned to it by its charter. The Society recently proposed to enlarge its scope of action in certain directions, with the result that in the name of a member, who is himself neither a principal in a business nor an employer of other members, an action was brought to determine how far the Society had the right to go. Its measures would be justified if it could be shown that they were for the "protection" of its members, according to the intention of its founders. This "test" case, A. H. Jenkin *v.* The Pharmaceutical Society of Great Britain, was heard by Mr. Justice PETERSON.

The plaintiff sought to restrain the Society from establishing an "Industrial Council Committee" for the drug trade, in initiating which undertaking it had already incurred expenditure. The objects for which the Industrial Council Committee was to be constituted included the regulation of wages, hours, working conditions, production, and employment, the settlement of disputes, the collection of statistics, improvement of health in the industry, and various other matters appropriate to an industrial council. Further, and apart from this, it was claimed by the Society that it had power by its charter and statutes:—

(*a*) To regulate hours of business of members, (*b*) wages and conditions of employment between members, (*c*) prices for sale of goods; also (*d*) to exercise the functions of an employers' association; (*e*) to insure members against errors and misconduct of employees, and against fire and other insurable risks; (*f*) to audit, collect debts, and take stock for members; (*g*) to maintain an employment register and a register of unsatisfactory employees; (*h*) to provide information as to the commercial standing of firms with whom members might wish to do business; (*i*) to provide legal advice for members.

The members of the Society, it is to be noted, are divided into two classes: members who are proprietors of businesses or principals, and members who are employees, the plaintiff being employed as head dispenser of the City of London and East London Dispensary, and being a member of the Council of the Society. His case was that the Acts referred to above were *ultra vires* the Society, and that it should be restrained from spending funds on them.

Mr. Justice PETERSON, dealing with the question of the powers of a society created by charter at common law, held that it could do with its property all such acts as an ordinary person could do, and even if its charter prohibited an act could do it; but that it did not follow that a member could not take proceedings to prevent it from doing acts outside its charter which might lead to its destruction by the forfeiture of its charter. Acting on this principle he examined in detail the proposed acts objected to by the plaintiff, concluding his judgment with a declaration that it was not within the powers or purposes of the Society to take part or spend funds in the establishment of the committee referred to above, or to undertake any of the matters referred to above under (*a*), (*b*), (*c*), and (*e*). As to all these proceedings he granted an injunction. In refusing an injunction as to other points he observed that some were not pressed by the plaintiff and that he had no evidence as to the nature of the functions referred to in (*d*), and also that he did not consider the objection to a register of unsatisfactory employees, to the effect that it was not for the benefit of members as a whole, to have been made out. He had no hesitation as to insurance as proposed, (*e*) not being within the charter or contemplated by those who procured it. Nor had he any doubt as to (*a*), (*b*), and (*c*), which he regarded as proposals which would convert the society into a trade-union. The importance of this decision to societies incorporated by charter is obvious both in respect of the general principles that should govern their activities and of the application of those principles. The result of an appeal, if any, will be watched with interest.

Safeguarded Milk.

WE drew attention last week to a circular issued by the Ministry of Health to the local authorities referring to the regulations in regard to the sale of graded milk. It is admitted in this circular that little advantage has been taken of these official arrangements, whilst it was rightly urged that producers and distributors should be encouraged by a growing demand to undertake the supply of high-grade milk in accordance with the prescribed conditions. In our correspondence columns this week Dr. S. G. MOORE, medical officer of health of Huddersfield, refers to the fact that there is now a Bill in Parliament to amend the Milk and Dairies (Consolidation) Act of 1915, a measure which, it may be remembered, was designed merely to save what might be saved of the comprehensive Milk and Dairies Acts of 1914, when the war prevented their enforcement.

Dr. MOORE'S plea is that there should be inserted in the amending Bill a clause insisting on pasteurisation of all but graded and certified milk. It will be agreed, however, that the method of pasteurisation calls for control as much as the inspection of the herds and vigil over the bacteriological state of the high-grade milk. As hinted by Dr. MOORE, the process can obviously be scamped, in which case the consumer would not be protected from the dangers of contaminated milk. Pasteurisation scientifically carried out is certainly calculated to remove the worst dangers of a contaminated milk-supply, judging from the experience of the United States, but it does not necessarily connote clean milk, and there is a risk in leaving in the hands of the producer a method recognised by Act of Parliament without taking steps at the same time to see that it is efficiently carried out. Care, of course, must also be taken to prevent the producer resorting to slovenly methods of production and distribution. This is a reasonable demand in view of the increased cost of milk obtained under the high hygienic conditions demanded by the graded qualities. Doubt may well be expressed as to whether the pasteurisation of milk containing dung particles will cover its sins, for a revival of its iniquitous contents may occur during transport, delivery, or storage.

We must bear in mind that with milk we are dealing with a nutritious fluid with eminently cultural properties, and the cleanliness of a milk-supply should be the supreme consideration. In its fluid form, as is well known, milk is most susceptible to chemical change and infection, and steps taken to protect fluid milk from disease-bearing entities must follow it from the stage of production to delivery. Numerous amendments in the Bill now before Parliament are an attempt to guard against such contingencies. The most important amendment, it seems to us, occurs in the paragraph in Section 3 which provides "for requiring milk to be treated by such process or processes as may be prescribed by the Order," and the amended Bill is designed to make for progress, giving wider facilities for securing the quality of the milk-supply. It provides, for example, for the licensing of dairymen and dairies, for the undertaking by sanitary authorities of the supply, distribution, cleansing, and storage, and for the organisation of milk and dairies committees appointed by local authorities. It is noteworthy that the expression "a sanitary authority" is to be substituted for "the council of a non-county borough." Quite apart from the inclusion of a pasteurisation clause in the Bill, such bodies will no doubt be authorised to deal with Dr. MOORE'S suggestion.

Annotations.

"Ne quid nimis."

THE NOBEL PRIZES FOR MEDICINE.

IT is announced that the Nobel Prize for Medical Science for 1919 has been awarded to Jules Bordet of Brussels, and that for 1920 to August Krogh of Copenhagen. There will, we think, be a general agreement among biologists that the adjudicators have chosen wisely, for the recipients are both original investigators who have made substantial and solid advances in the sciences allied to medicine. Bordet was among the first to expose and unravel the strange properties of immune serums more than 25 years ago, when he worked at the reactions between antigen, immune body, and complement, and it is no disrespect for its inventor that has led everyone to use Ehrlich's convenient expression instead of "substance sensibilisatrice." Bordet's name is not associated with any notorious discovery or diagnostic test, but we may remind our readers that the Wassermann test for syphilis is simply an application of the work of Bordet and Gengou on the fixation of complement as an example of what has been built on the solid foundations for which he is responsible. Bordet's great survey of the present state of knowledge of immunity published last year is a landmark in the study of the subject; it would be a useful act of appreciation if it were made more available to English readers in a translation. Krogh is probably less well-known outside the circle of physiological specialists, though a good deal of his work has been published in English journals. Like his fellow prizeman, he is conspicuous more for the solid worth of his investigations than for their popularity. His researches on respiration are models of accuracy, and the refinements and precision of his technique have introduced varieties of now apparatus which have become almost necessities for anyone working along the same lines. A zoo-physiologist in the best sense, he has inquired into the respiration of fishes and snails as well as of man, and his breadth of view is well shown in the volume on respiration which he contributed to Longman's "Monographs on Biochemistry."

WHAT CONSTITUTES MENTAL DEFECT?

IN the absence of any more satisfactory means of differentiating persons of abnormal mental development the application of tests for "intelligence" has of late years become fairly general, and even though the results obtained have not always been handled with discretion, it has been recognised that these results have some value in enabling an examiner to decide as to the capacity of individuals to meet their social obligations. The method has perhaps been employed more widely in the United States than in this country, and numerous statistical tables have been published which indicate how large a percentage of criminals, prostitutes, inebriates, and the like, fall below the normal intellectual levels. Figures based upon the examination of 1,700,000 recruits for the American Army, made public in 1919 by Dr. H. H. Goddard, who has long been associated with work of this kind, suggested that the mental condition of the general population of the United States was surprisingly backward. It appeared, from the observations made, that 70 per cent. of the population have only attained to the mental level proper to children of 14 years of age, while 45 per cent. have a mental age of 12 years or under. We are naturally prompted to inquire whether matters are as bad as this in our own country, for if the conclusions arrived at are equally applicable to the people of Great Britain they have a practical importance which those of our readers who work among the mentally defective will do well to note. It would appear from a recent statement by Mr. Cyril Burt,[1] psychologist to the London County Council, that we have no justification for assuming the attitude

[1] The Definition and Diagnosis of Mental Deficiency. By Cyril Burt, M.A. Studies in Mental Inefficiency, vol. i., No. 4, Oct. 15th, 1920.

of the Pharisee. If it is accepted that to have less than 7/10 of the average amount of intelligence at his age indicates that a person is mentally defective, a mental age of 11 would mark the lower limit of normal intelligence in the adult, since intelligence does not appear to increase after about the age of 16 years. Mr. Burt considers the suggested level of 11 years a high one. "I should," he says, "hesitate to consider a person defective on the ground of intelligence alone unless his mental age were only 8 or less." Medical examiners will have to reconsider their responsibilities under the Mental Deficiency Act of 1913 very carefully if they must regard as uncertifiable persons showing anything more than half the normal amount of intelligence. The effect of such a course would be to eliminate the class of "feeble-minded" altogether if the examiner employs the tests in the Stanford Revision of the Binet-Simon Scale, while practically no "moral imbecile" could, on these lines, be regarded as having such "permanent mental defect" as would bring him within the scope of the Mental Deficiency Act.

"PHYSIOLOGICAL REVIEWS."

WE are prepared to give a warm welcome to a new journal to be called *Physiological Reviews*, to be published by the American Physiological Society, under the editorial direction of such well-known trans-Atlantic physiologists as W. H. Howell, Baltimore; Reid Hunt, Boston; F. S. Lee, New York; J. J. R. Macleod, Toronto; Lafayette B. Mendel, New Haven; H. Gideon Wells, Chicago; with D. R. Hooker, of Johns Hopkins Medical School, as managing director. The first part will appear in January, 1921, and the publication will be continued quarterly, the annual subscription being $6, and each volume will extend to 500 pages. The main object is to furnish a means whereby those interested in the physiological sciences may keep in touch with contemporary research, and the reviews should appeal strongly to teachers of the underlying sciences, to clinicians, but particularly to scientific clinicians and to laboratory workers. There are a large number of journals of one kind and another which usually, without comment, publish abstracts of recent papers on various subjects. One of the earliest was the *Centralblatt f. d. Med. Wissenschaften*, out of which sprang many other Centralblätter in Germany, including the *Centralblatt für Physiologie* and the more recent very comprehensive *Berichte über die Gesamte Physiologie*[1]; and our own Physiological Society publishes physiological abstracts. The object of the new publication is something different. It is to be more on the lines of the well-known "Harvey Lectures," published in the United States, and the perhaps better known "Ergebnisse der Physiologie." The object is to provide articles from time to time in which the most recent literature is compared and summarised. Thus it will represent a "follow on" to the abstracting journals, supplementing them, and it will be the duty of the editorial board to select subjects and assign them to authors who will give a comprehensive, critical, and reasoned review of all the recent literature bearing on the subjects selected. In this way a balanced treatment of topics of special import at the time will be secured. In addition, each article will contain complete bibliographical lists of the subject under review. In order that the character and scope of these articles may be judged, we give the titles of the subjects for summary and comparison in the first two numbers. The regulation of the pulmonary circulation, the origin and propagation of the cardiac impulse, the anaphylactic reaction, photo-electrical currents of the eye and the carbon-dioxide carrier of the blood. In Part 2, which will appear in April, the five reviews will be: blood volume and its regulation; the sugar of the blood; the circulation in capillaries and veins; the heat-regulating mechanisms of the body; contributions of war surgery to the physiology of the (central) nervous system. Reviews of subjects of such scientific and practical importance by carefully selected authors of established repute, as the published list assures, cannot but prove at once a boon and an incentive to the future development of physiology, as well as to experimental medicine—and in physiology the editors include biochemistry, biophysics, experimental pharmacology, and experimental pathology. We wish the new venture every success.

[1] THE LANCET, 1920, ii., 299.

MEDICINE AND PLUMBING.

ON Monday evening Dr. F. J. Waldo, Master of the Worshipful Company of Plumbers, presided over the first annual dinner of the Company which had been held since the commencement of the war. By the courtesy of the Lord Mayor, who was present as the principal guest, together with the Sheriffs of the City of London, the dinner was held at the Mansion House, when a large number of guests assembled. Dr. Waldo, in responding to the toast of "The Health of the Company," which was given in eloquent terms by Viscount Burnham, briefly detailed its history and objects, alluding especially to the design of the Company to obtain the principle of the national registration of plumbers under which the public could distinguish the educated plumber and secure a proper system of education and a high standard of practice. The national registration of plumbers was recognised by all the speakers to be the ideal immediately ahead of the Company, and insistence was laid on the value that such registration might be to the public health. This is a view which medical men will heartily endorse. It is quite impossible to estimate the debt which public health owes to effective plumbing, and it would make dismal reading to recount the number of cases in which defective technique in sanitation has led to disease. The aim of the Company of Plumbers will have the sympathy of all our readers.

SHARK-BITES.

THE cases in which a person bitten by a shark has escaped are so few that they are curiosities in medical literature. In the *Medical Journal of Australia* Mr. Harold Miller, of Townsville, Queensland, has reported the following case:—

A yacht conveying stores to the Bay Rock Lighthouse from Townsville capsized in Cleveland Bay, which is infested with sharks, overturned, and sank. The seven occupants tried to swim to the rock, a distance of about three miles. One of them, a youth of 20, was attacked by a shark after he had been swimming for 20 minutes. The shark evidently did not get sufficient grip with his teeth. It then tossed the youth out of the water a distance of several feet and did not trouble him again. He was able to continue his swim and eventually reached the rock. Three of the occupants were lost, but the others reached the rock without molestation. On examination the wounds, which were on the right side of the lower part of the trunk, were found not to be deep. The majority penetrated only to the subcutaneous tissue. Some on the buttock extended more deeply, exposing the muscles, and some on the posterior aspect of thorax penetrated to the ribs. Eleven days after the attack the wounds had partially healed.

In the same number of the journal Mr. C. Wassell has reported the case of a native of Thursday Island, who was working naked as a pearl diver. He was attacked by a shark while under water. The fish went for his head, which it took in its mouth. The man was of splendid physique, but unarmed. By sheer force he managed to liberate himself. A photograph of the bites shows clearly that his head was in the shark's mouth. He recovered without incident.

We may refer to some cases of shark-bite in the Philippine Islands recorded in the *New York Medical Journal* of Nov. 22nd, 1902, by Dr. J. A. Guthrie, a surgeon in the United States Navy. One is much more remarkable than either of the preceding cases. A man, while swimming, felt himself suddenly dragged under water. Not realising the cause, his first impulse was to resist and swim to the surface. He then felt a terrible crunching at his knee, but owing to excitement did not, according to his statement, feel any pain. He felt himself released and swam to a boat 15 yards away. He realised that his leg was gone, but dauntlessly struggled on. He was hauled aboard, and by pressure on the femoral artery the hæmorrhage was controlled.

With a piece torn from a shirt and a stick a tourniquet was improvised and he was rowed to his ship, where a surgeon performed amputation. He recovered. In another case a Moro was in his fish weir catching fish with his hands. A shark which had been entrapped bit him in the thigh, carrying away a large part of the extensor muscles and leaving a gap 10 by 6 in. extending down to the bone. The wound healed by granulation with the aid of skin-grafting. In a third case a Moro was bitten in the face while swimming in his fish weir catching fish with his hands. When seen an hour afterwards his nose was hanging by a shred and there were prints of shark's teeth over the whole of the right cheek. The nose was sutured and an iodoform dressing applied. Union by first intention followed.

THE MILK SITUATION IN GERMANY.

THE first editorial note in the *Münchener medizinische Wochenschrift* for Oct. 22nd runs as follows:—

According to newspaper reports, the Reparations Commission is demanding from Germany the immediate delivery of 810,000 milch kine, 100,000 bulls, 11,150 bullocks, and 52,000 draught oxen. That means for our food-supply in milk alone a daily reduction of 6,000,000 litres. Since the healthy adult population in most parts of Germany already at the present time gets no milk at all, the reduction affects nearly exclusively sick people, nursing mothers, and young children. To make such a suggestion to our severely undernourished people is so inhuman, so shameless, that no word of indignation thereat can be sharp enough. It is an attack aimed at the survival of our race, which can only now be kept alive thanks to the help of America and other philanthropic organisations. Until now our rulers have given way to all and every demand of the Entente. But we believe that with this attack on the dearest thing a nation possesses—its children—even the lamb-like patience of the German people will come to an end, and that popular anger will brush aside the Government which offers to bow to this demand.

The prospects of famine in Germany during the coming winter are serious enough, but we believe our contemporary to be misinformed in regard to the Reparations Commission's proposals, although it is difficult here also to obtain accurate information regarding them. According to the terms of the Peace Treaty, 140,000 milch kine were to be handed over by Germany to France and Belgium, and this transfer was proceeding smoothly until its interruption by an outbreak of epidemic stomatitis. In addition, and by way of part payment in kind of the money indemnity, it is understood that France and Belgium have asked for 800,000 head of German cattle; but these are not to be milch kine, nor has any decision been reached regarding the date of their transfer. There is a world shortage of cow's milk, but we are glad to assure our Munich colleagues that whatever may be the feeling of the medical profession in this country it is not party to a design for starving German babies.

VENEREAL DISEASE SCHEMES.

A REPORT on venereal disease from the pen of Dr. F. J. H. Coutts is included in the first annual medical report (dated August 4th, 1920) of the Ministry of Health. The number of clinics, it is stated, now open is 176 as compared with 148 in June, 1919. But this figure does not indicate the whole advance in facilities. At many clinics the number of weekly sessions has been increased and hours modified to suit the convenience of patients, thus enabling larger numbers to take advantage of the opportunities afforded for treatment. There are 100 auxiliary clinics held in the same premises or elsewhere, and at 15 hostels patients are admitted for prolonged periods of treatment. The number of laboratories hitherto approved in connexion with venereal schemes is 65, some laboratories serving a number of clinics. In addition arrangements have been approved at a considerable number of clinics for the immediate examination at or in connexion with the clinic of smear preparations for detection of *Sp. pallida* or gonococci. Venereal disease schemes have been approved for 61 counties, 78 county boroughs, and for the City of London; 140 in all. The population of the areas for which schemes have been approved is approximately 35½ millions in England and Wales. Orders have been issued putting into force Section 1 of the Venereal Disease Act, 1917, in 60 counties, 74 county boroughs, and in the City of London—i.e., in the areas of 135 authorities out of 144. The following table indicates the extent to which the clinics were utilised during the calendar year 1919:—

Cases dealt with for the first time.	London.		England and Wales (including London).	
	1918.	1919.	1918.	1919.
Syphilis	8,789	9,785	26,912	42,256
Soft chancre	198	481	806	2,114
Gonorrhœa	7,614	12,881	17,635	38,500
Cases of doubtful venereal disease coming for diagnosis	2,851	5,118	6,622	15,392
Totals	19,452	28,265	51,975	98,262
Total out-patient attendances	184,205	307,722	488,137	1,002,791
Total in-patient days	72,862	73,211	145,217	176,816

These figures show a remarkable increase, especially in the provinces, but, if the Army estimate of the relative frequency of gonorrhœa and syphilis (2½ to 1) is correct, it is clear, the report states, that only a low proportion of the cases of gonorrhœa in the country come under treatment at public clinics. Probable reasons for the neglect to apply for treatment are the light view which is taken by the general public of the seriousness of gonorrhœa and the inadequate facilities at many clinics for its treatment.

THE RELATION OF TEMPERATURE TO MALARIA IN ENGLAND.

IN a communication to the August number of the *Journal of the Royal Army Medical Corps* Major Angus Macdonald records some interesting observations on the incidence of malaria in relation to temperature, with special reference to outbreaks of the disease in this country. Incidentally, he finds reason for doubting the accuracy of the general belief that prior to the latter half of last century malaria was rife in certain districts of England. His researches into old records led him to the conclusion that the disease has occurred in epidemic form, of which the last recorded visitations were in 1823–26 and 1857–60, with intervening periods, during which there are sporadic cases, but no continuity of endemic malaria. Examination of the temperature records from 1763 to date, for the whole of which period fairly reliable observations appear to be available, shows a remarkable succession of abnormally hot seasons during the years 1856–59. Other periods of exceptional heat, though to a less degree, were in 1808–09 and 1825–26. A scrutiny of the daily records during the summers of 1856–59 shows that the temperature conditions requisite for the completion of the plasmodial cycle in the mosquito were amply fulfilled, and there can be no doubt that the continuity of hot seasons was a factor of paramount importance in determining the high malaria incidence during those years. It should not, however, be overlooked that this same period of years corresponded with the end of the Crimean War and the whole duration of the Indian Mutiny, and previous to and during the period carriers were doubtless arriving in the country in exceptionally large numbers.

Coming to recent events, with the importation and distribution throughout the country of malaria carriers in numbers beyond all previous experience, an unprecedented opportunity was provided of assessing the relative importance of the carrier factor in the spread of the disease under climatic conditions such as ours. There was, according to expectation, an increase of indigenous malaria. The officially recorded numbers, which probably fall considerably short of the actual numbers, are, as quoted by Major Macdonald, 200 cases in 1917, 86 in 1918, and about 40 up to Nov. 1st,

1919. Most of these cases occurred in Sheppey and at Sandwich, in the neighbourhood of marsh lands which are infested with *Anopheles maculipennis*. In no case were parasites other than that of benign tertian malaria (*P. vivax*) found; the absence of *P. malariæ* is not surprising, since the number of carriers of this form of the malaria parasite was negligible; but the same cannot be said of the parasite of malignant tertian malaria (*P. falciparum*), carriers of which arrived in this country from Macedonia and other war areas in large numbers. In this connexion it may be noted that in France a few indigenous cases of malignant tertian malaria have been recorded, and it has been shown that the development of *P. falciparum* in the mosquito may proceed at temperatures not unusual during the summer in England. Turning to the temperature records, the first spell of hot weather in 1917 was in the middle fortnight of June; the earliest cases of indigenous malaria were recorded in the beginning of July. There were further prolonged periods with a mean daily temperature well over 60° F. during July and August, and the season may therefore be regarded as a favourable one for the development of the malaria parasite. In 1918 there was no continuous hot weather till July, and malaria made its appearance in August, the total number of cases being 86—less than half the number recorded for the previous year. In 1919 the season was still less favourable, the advent of continued hot weather being delayed to August. A period of exceptional heat during this month and the greater part of September was not sufficient to compensate for the late beginning of the hot season, and the number of indigenous cases was relatively small, being reduced to 40, of which most occurred in early September. It is thus seen that the number of cases in each year varied directly with the effective temperature period, being greatest when this was longest in 1917, and smallest when the period was shortest in 1919. Consideration of these figures serves to emphasise the relative insignificance of the carrier factor in the absence of favourable climatic conditions. Notwithstanding the influx of carriers in unprecedented numbers, the sum of the recorded cases of indigenous malaria for the three years 1917–19 was less than 330, a proportion of which, probably a very small one, represented the normal sporadic incidence. It is fortunate that during these years the seasons, taken as a whole, have been unpropitious to the development of the malaria parasite; if the importation of carriers from Eastern war zones had happened to coincide with a series of abnormally hot seasons such as were experienced during the years 1856–59, we should probably have been confronted with an outbreak of indigenous malaria on a much more formidable scale than has been the case.

ANOMALOUS FORMS OF PNEUMONIA.

THE symptoms, physical signs, and course of the majority of cases of lobar pneumonia are so characteristic and almost stereotyped that it is important to remember that many anomalous forms of this condition occur, and that the diagnosis may be obscure and difficult to establish in some of them owing to the mode of onset, the late development of signs, or the presence of complications tending to simulate other conditions. We are not here concerned with the influenzal pneumonia dealt with in a note by Dr. H. T. Gillett on p. 945, as this is probably not a true pneumonia but a septic broncho-pneumonia. Dr. H. W. Hales's interesting note last week recorded two cases of true pneumonia, both in children, in which the onset of the disease was associated with conditions in the right iliac region suggesting appendicitis. In both cases there were also marked cerebral symptoms, though no evidence of invasion of the central nervous system or the meninges was forthcoming, except that in both lumbar puncture showed that the cerebro-spinal fluid was under pressure. One of the cases was fatal, and a left-sided pneumonia with purulent fluid in the pleura was found, and, in addition, a small pneumococcal abscess was discovered in the lumen of the appendix. Dr. Hales suggests that this may have been the primary focus, and that the lung condition was secondary to it. The second case recovered, but was left with a lump in the right iliac fossa suggestive of enlarged glands. It is well recognised that the onset of some cases of pneumonia may cause abdominal symptoms on the same side, particularly when the lower lobe of the lung and the diaphragmatic pleura are involved, but the anomalous association of left-sided pneumonia with symptoms suggestive of appendicitis was explained by the actual condition found in the appendix in the first case described by Dr. Hales. These cases emphasise the importance of an examination of the chest as well as of the abdomen in cases of abdominal pain originating with acute febrile symptoms.

DISEASES OF ANIMALS IN 1919.

THE Report of proceedings under the Diseases of Animals Acts and Markets and Fairs Acts for the year 1919, issued by the Ministry of Agriculture and Fisheries, shows that there has been a very large increase in the number of outbreaks of foot-and-mouth disease during the year. In 1918 only one outbreak was recorded; in 1919 there were 84. The most serious position arose in the Isle of Wight, where there were 27 outbreaks, involving five parishes, a condition which "could only mean that the disease had existed unreported for some time." The prevalence of the disease furnished opportunity for a more energetic investigation into, and a closer analysis of, the method of spread of infection. This has always been a difficult matter to fathom, and it cannot be said that the facts brought out in this Report admit of the adoption of any very hopeful plans to prevent or check the coming or dissemination of infection. After a careful consideration of prevalent theories as to the origin of the outbreaks, it is suggested that ducks, geese, and gulls, which travel long distances for food, may be possible carriers of infection by means of their feet or plumage, or by excretion of the virus, which passes unchanged through the intestines. On the other hand, it is considered more likely that the virus is air-borne; experiments by Blackley have shown that grass pollen may be carried as far as from Norway to this country, and this pollen might easily be contaminated in countries where the disease is almost always present. Again, infected mucus can be carried long distances by air currents and clouds; the disease prevails in England at times when it is also present in Northern France, Belgium, and Holland. There were 143 cases of rabies, 140 dogs, 2 horses, and 1 pig being implicated. In many cases the head and neck of the suspected animal were sent to the laboratory and a quick and accurate diagnosis of the disease was made by histological examination and discovery of "Negri bodies."

Treatment of 66 persons (46 bitten by animals proved to be rabid) was arranged for by medical officers of the Ministry of Health; the good work done is indicated by the fact that no deaths occurred from hydrophobia. There were increases in the number of swine fever cases reported and in the number of outbreaks confirmed; the reporters came nearer to a recognition of the symptoms of the disease than in former years, but only 2317 cases were confirmed out of a total of 10,359 suspected pigs reported. The reporters evidently err on the safe side. Glanders is now approaching the point of eradication, only 25 outbreaks having occurred. By slightly extending the powers of local authorities, with more complete control against introduction from abroad, the disease may be entirely stamped out in this country. The importance of this result to man himself is brought home by the extraordinarily interesting case of human glanders recorded in our present issue by Dr. F. H. Jacob and Dr. H. M. Turnbull. Anthrax increased in frequency, there being 27 more outbreaks than in 1918. This is probably due to revival of trade in imported hides and feeding stuff. Fourteen outbreaks occurred on corporation sewage farms, and it appears that a number of these cases are due to contamination of the sewage by anthrax spores from industrial works. The single dipping of sheep is shown to be useless against sheep scab. Any scientific treatment must be based on a

knowledge of the life-history and physical properties of the parasite causing scab. A second dipping should be given after an interval of ten days.

Parasitic mange in the horse continues to spread. There were 5003 cases reported in Great Britain in 1919, as compared with 4483, 2614, and 2147 in previous years. The Report states that the suppression of mange depends almost entirely on the efforts of horse-owners, but such efforts must at the present time be almost superhuman if they are to be successful; shorter working hours mean dirty horses and stables, and in many cases centres of infection will only be eradicated when buildings are burnt down and reconstructed.

AN ALIENIST ON ALCOHOLISM.

IN a recent important article Professor Kraepelin,[1] of Munich, points out that contrary to what had been generally anticipated the war did not cause any great increase in mental disease. The number of admissions to the Munich Psychiatric Clinic, of which he is the director, was 1758 in 1913 and 1838 in 1914, as compared with 1478, 1488, 1448, 1614, and 1413 in the five subsequent years. Although allowance must be made for the fact that a large proportion of the male population were treated in military hospitals these figures include a considerable number of cases of war neurosis which almost invariably made a rapid recovery after the end of the war. As a welcome offset to the high mortality among asylum inmates caused by the blockade, Professor Kraepelin draws attention to the remarkable diminution throughout Germany in the number of mental diseases due to alcoholism, adding that the favourable influence which the scarcity of alcohol had on public health had already been emphasised by several neurologists and alienists. It is noteworthy that whereas the number of cases of alcoholic psychoses admitted to the Munich Psychiatric Clinic in 1910 was 300 and in 1914 277, excluding those in which alcoholism was not the chief cause of insanity, the figures sank to 126 in 1915, 76 in 1916, 56 in 1917, 44 in 1918, and 43 in 1919, so that the percentage of alcoholic mental diseases had sunk from 22·1 to 5·5 per cent. of the total admissions. There is not the slightest doubt, Professor Kraepelin remarks, that in Munich where alcoholism is almost entirely due to beer drinking, this excellent result was caused by the smaller amount of alcohol in the beer. Alcoholism due to over-indulgence in beer has practically disappeared in Munich, where the only cases of alcoholic intoxication seen are due to wine or brandy. These observations are in remarkable agreement with Dr. H. M. Vernon's plea for light beer containing at most 3 per cent. of alcohol, and partly answer the question propounded at the end of our annotation (p. 908) last week. Professor Kraepelin himself earnestly opposes a return to the strong beer of pre-war days, stating that it is not a question of brewery dividends, but the all-important consideration of public health that should be decisive. In an editorial footnote we learn that his article, which was originally intended for the daily press, was refused insertion in a leading Munich paper owing to the powerful influence of the brewing interest, and that in spite of the warning of so eminent an authority the Munich beer has reverted to its original strength.

THE gold medal of the Royal Society of Medicine will be handed to Sir Almroth Wright by Sir John Bland-Sutton, President of the Society, on Thursday, Nov. 11th, at 6.30 P.M., instead of as previously announced. Sir Almroth Wright will then deliver an address on Medical Research.

As will be seen from our Parliamentary Intelligence Mr. Fisher has informed Sir William Davison, in reply to a question in the House of Commons, that the price which the Duke of Bedford and his trustees have agreed to accept for the site at the rear of the British Museum offered by the Government to the Senate of London University is £425,000.

[1] Münchener medizinische Wochenschrift, Oct. 22nd, 1920.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

THE last International Tuberculosis Conference was held in Berlin from Oct. 22nd–25th, 1913, when the German Empress was present at the opening session. Dr. Nathan Raw was a sectional president and Sir Robert Philip presented a report on the progress of the campaign against tuberculosis in Great Britain. The Conference then appointed for 1914, with its meeting-place at Madrid, did not take place on account of the outbreak of hostilities. In order to re-establish a bond between the antituberculosis associations of countries within the League of Nations and of the United States of America, a Conference was held in Paris from Oct. 17th to 21st. The representatives from Great Britain were Sir Robert Philip, representing the National Association for the Prevention of Tuberculosis and the Ministry of Pensions; Dr. Nathan Raw, M.P. (N.A.P.T.); and Dr. Halliday Sutherland (Ministry of Pensions). As a result of the Conference an International Union Against Tuberculosis was formed, the President being Professor Léon Bourgeois (Paris), and the Honorary Secretary, Professor Léon Bernard, 3, Rue Las Cases, Paris. Professor Bourgeois was to have presided at the Berlin Conference in 1913, but was prevented by an urgent operation from so doing, the late Professor Landouzy reading his address. The headquarters of the Union will be at Geneva, and the next Conference is to be held in London in 1921.

Opening of the Conference at the Sorbonne.

The opening meeting was held on Sunday afternoon, Oct. 17th, in the great amphitheatre of the Sorbonne, where M. J. L. BRETON, Minister of Hygiene, presided over an audience of 3000. Speaking on behalf of the French Government, he welcomed the delegates at this renaissance of international action against tuberculosis. On behalf of the British National Association, Dr. RAW thanked the Minister for his cordial welcome.

Sir ROBERT PHILIP, whose opening address to the Congress was delivered in French, remarked that the presence of the Minister of Public Health at this renaissance of a world-wide organisation against tuberculosis was a good omen for the future.

The prevention of tuberculosis, he said, implied a larger measure of health for each individual citizen, and the collective health of the citizens determined the prosperity of a State. Tuberculosis was one of the most difficult and persistent of present-day problems. The infection of the race by tuberculosis was a stain on our vaunted civilisation, because wherever men congregated in communities this disease appeared, although it was often absent amongst primitive peoples, and, indeed, there were still regions of the world where tuberculosis was unknown. Even to-day, as soon as a primitive people left the mountains or the prairies they became tuberculous. Yet science had shown that this disease, so far from being essential to civilisation, was the direct result of an imperfect and unenlightened civilisation. The incidence of tuberculosis was determined by two factors, the presence of infection and the suitability of the soil. In an intelligent campaign against tuberculosis these two factors must receive equal recognition. To exaggerate the importance of one at the expense of the other was a disastrous error. The importance of infection is seen in striking relief, when the disease gains access to a virgin soil. Many examples of this had been cited, and one of the most remarkable concerned the experience of the Senegalese troops in France during the last war. M. Borrel had shown that only 4 or 5 per cent. of these troops coming direct from Senegal to the French camps at Frégus were recognised as tuberculous. Nevertheless, the mortality due to tuberculosis amongst these troops after they had been in France for five months rose rapidly from 48 in 1916 to 312 in 1917, 557 in 1918, and to 298 in 1919. Post-mortem examinations showed a special type of disease among these troops, a type which resembled the acute tuberculous infection of childhood. In the older centres of civilisation that type of disease was not found in adult life. The accumulated evidence showed that in the older countries almost every member of the community was infected, and that resistance to the development of the malady was largely determined by environment. As long as infection was omnipresent, and social conditions were unphysiological, the risk of developing the disease, after exposure to infection,

would remain very great. These two factors should determine the future attitude of the nations of the world in the campaign against tuberculosis.

Diagnosis of Tuberculosis.

At the morning session of the Conference on Oct. 18th, held at the Faculty of Medicine, the value of various diagnostic methods was discussed. The various speakers confined themselves to a précis of their papers, which will be published in the Transactions of the Conference. Dr. M. L. RÉNON gave a résumé of the report of a French medical commission, which concluded that the only certain diagnostic sign was the presence of tubercle bacilli in the sputum, but urged that the search for tubercle bacilli should be thorough and that when necessary inoculation of the guinea-pig should always be practised. In France 97 per cent. of the urban population gave a positive reaction to the cutaneous reaction (von Pirquet), and consequently this reaction was useless in the diagnosis of active tuberculosis in adults. Dr. BACHMANN (Switzerland) said that accurate diagnosis could only be attained by a combination of clinical and biological methods.—Dr. SUTHERLAND said that throughout the world the problem appeared to be the same. General practitioners failed to recognise the early stages of tuberculosis. The new International Union would do well to encourage early and accurate diagnosis. The difficulty had been stated 400 years ago by Machiavelli—"In its beginnings the disease is easy to cure but difficult to recognise, but when it continues unrecognised and untreated it becomes easy to recognise but difficult to cure."—Dr. CHARLES MINOR (U.S.A.) summarised the reports of the American National Association and of the United States Army Medical Service on clinical and biological diagnostic methods.

Social Campaign Against Tuberculosis.

At the second session on Oct. 19th Dr. ARMAND GUILLON gave an account of the work of various anti-tuberculosis organisations in France, and paid a high tribute to the work of the Rockefeller Commission.—Sir ROBERT PHILIP stated the position in Great Britain, and quoted the figures published in the recent report of the Ministry of Health.—Dr. F. MORIN (Switzerland) said that the Swiss Government had recently passed a law requiring compulsory notification, disinfection of houses, hospital treatment for advanced cases, and supervision of conditions in workshops.—Dr. ANTONIO ESPINA Y CAPO (Spain) said that they should no longer depend on charitable contributions for the antituberculosis campaign, but on Government contributions in order to place the movement on a firm basis.

Social Functions.

The last business meeting of the Conference was held on Oct. 20th, and on the 21st a large number of dispensaries and hospitals in Paris were open to the delegates. During the Conference the delegates received much hospitality from their French confrères, and attended many functions, including a reception at the Hotel de Ville. The Rockefeller Commission in Paris held a reception on Oct. 20th, and also arranged a popular entertainment at the "Cinema Select," where their new propaganda film, "La Force de la Vie," was shown. At this meeting, which was open to the general public, Sir ROBERT PHILIP gave a popular address in French.

A MASSAGE CLINIC AT ST. DUNSTAN'S.—St. Dunstan's Hostel for Blinded Soldiers and Sailors initiated on Nov. 1st an interesting massage experiment. An up-to-date massage, electro-therapeutic clinic has been opened at 18, Christopher-street, Finsbury-square, E.C., under the auspices of St. Dunstan's Hostel for Blinded Soldiers and Sailors, where the operators are blinded soldiers trained at St. Dunstan's. The four treatment rooms, in which it will be possible to deal with 40 to 50 cases daily, have been equipped with all the necessary apparatus, and the clinic has been approved by the Ministry of Pensions for ex-officers and men who work in the City, and who find it difficult to obtain the treatment prescribed for them on account of lack of facilities near their place of employment. Captain Ian Fraser, a blinded officer, is in charge of the clinic.

THE LONDON MOTOR EXHIBITION.

(FROM OUR MEDICAL MOTORING CORRESPONDENT.)

TO-DAY (Friday) the fourteenth annual Motor Exhibition, organised by the Society of Motor Manufacturers and Traders, will be opened to the public. It will be held at Olympia and at the White City simultaneously, and each show will be equally attractive. Last year, though many firms exhibited suitable wares, few were able to accept orders for delivery within a reasonable time. In addition, labour difficulties, scarcity of material, and the clamour of customers did not contribute to finish and workmanship. This year it is different: production is approaching the demand, and in some cases exceeding it. In fact, in America, and to a small extent in this country, some price reductions have been announced. Many question whether this is the beginning of a wholesale fall in prices. The question arises, Should the purchase of a car be put off, trusting to this surmise? I think it will be admitted that, generally speaking, selling prices are established on the cost of production. When this declines the selling price will also come down. Steel is greatly employed in car manufacture, and the basis of steel-making is coal. The present shortage and cost of that essential makes a likelihood of an immediate fall in price remote. Those who can delay purchasing for a year or two might do so with advantage. By then there will probably be a fixed ratio between output and unit of wages paid, with the consequence that manufacturers will be able to speed up production, and thus with a fall in cost there will be one in the selling price.

Requisites of the Medical Man's Car.

What does a medical man need in the matter of a car? For town, a landaulette or coupé; for the country, a coupé or a two- or four-seater with a one-man hood and side curtains, so as to get an all-weather body. A ten or twelve horse-power engine is in most cases sufficiently powerful, but there should be simplicity of construction and accessibility of all parts likely to need adjustment. Except in very small cars four cylinders are preferable. Those cast in a single block are quite satisfactory, even though it does mean a little more trouble in handling when dismantling. Detachable cylinder heads have a value in permitting decarbonisation and easy grinding in of the valves. With this type there is in addition the advantage that the combustion chamber can be machined, thus rendering less likelihood of carbon deposit with subsequent pre-ignition troubles. Overhead valves contribute to engine efficiency, but it is as well to see that the overhead camshaft and its gears are adequately lubricated. In this regard the repute of the maker counts for much. Firms of standing and name can safely be trusted to see to such matters. The war aero lessons are responsible for the aluminium alloy pistons seen in last year's show. This year certain cars have, I believe, wisely discontinued their use. Moving parts should certainly be light, but cast-iron is useful stuff and for pistons seems hard to beat. Water circulation by thermo-syphon, if the pipes are sufficiently large, can be trusted to keep most engines cool. It has, too, the advantage of doing away with a pump, and the best of pump glands occasionally leak. Most carburetters nowadays are satisfactory, especially the Zenith, Claudel-Hobson, and the S.U., but it is important that they should be placed so that the jet and petrol filter can be easily removed without taking down the carburetter itself or other parts.

Magneto ignition is still in favour. Only about 10 per cent. of the cars shown have battery and coil, though the latter are, of course, cheaper to instal, and satisfactory now that electric charging sets are so commonly fitted, and the accumulators thus always kept fully charged. In the magneto type it is well to make sure that the make-and-break is easily reached. On one car I saw it struck me that to do so might necessitate taking down the steering column. The leather or ferodo-lined cone clutch and the single disc are most in evidence, though the multi-plate

has a fair number of advocates. The former has the advantage that in the event of the fibre or leather wearing it is easily replaced, but the multi-plate needs an expert to repair it. One great improvement in the transmission is that the old type of universal joints, which, however well lubricated, did wear and add its quota to the car's noises, are now represented in many cases by the leather or fibre disc kind. They are simple, and any owner can easily replace the fibre or leather when worn.

The Final Drive.

Opinions have varied regarding the final drive. For excellence and cheapness the helical bevel is undoubtedly first. It is quiet, and in this respect is at all events the equal of the worm. If the latter was fitted on top there was bed-wear; if below, then the carden shaft was not, as a rule, in line, with resulting excessive use and wear of the universal joints. In addition, the worm needs much more careful fitting: a strong argument against its use—anyway in the cheaper type of car, considering the present high charge for labour. The brake on the carden shaft is certainly powerful, but a source of much wear, so I welcome the appearance of the American plan of having both sets of brakes acting directly on the back wheels. Whether the two are of the internal expanding type or one with an external band is immaterial, so long as both can be easily adjusted. The comfort of driving is, of course, greatly influenced by the suspension, to which the more common use of the cantilever rear spring certainly adds. The semi-elliptic form, if sufficiently long, is also satisfactory. Every type should be enclosed by a gaiter, such as the Duco, which, in addition to keeping the component leaves surrounded by lubricant, also protects them from water and dirt. The question of gear-lever location is largely a matter of use. The central position simplifies its construction and permits entrance on either side of the car, though there is always the chance that it may be moved by a passenger inadvertently, which is not possible with the right-hand arrangement. Nearly all makers now fit electric lighting and starting units, and most have accommodated these fitments to their engines. It is as well, however, to see that they are accessible, and especially that they do not render inaccessible those parts of the engine that may need attention. Lastly, a would-be purchaser should make sure that greasers and oiling points are not hidden in inconvenient positions.

MEDICINE AND THE LAW.

The Illegal Distribution of Cocaine.

FOR the last two months the import and export of cocaine and its congeners have been prohibited except under licence. Nevertheless, there is too much of it about. An inquest was recently held by the coroner for St. Pancras upon the body of a young man named Strutt, 37 years of age, who was proved by medical evidence, based upon post-mortem examination and analysis, to have died from cocaine poisoning. He had left his home in Kent and come to London with the avowed intention of joining the Royal Irish Constabulary, and had partly filled up a form of application, when he collapsed in the corridor at a Turkish bath, and was removed to the Royal Free Hospital, where he died. There was no evidence as to how the deceased obtained the cocaine or with regard to any use of the drug by him. In a case heard about the time of the holding of the above inquest a young woman named McMahon was proved to have been arrested in Tottenham Court-road with two small packets in her hand, one containing cocaine and the other heroin. She was sentenced to three months' hard labour for the unauthorised possession of cocaine which in the opinion of the police was for her own use. There was no evidence to show how she obtained it, nor in the report before us was any reason given for the police having suspected her of carrying it. Her own account that she had "found it in a kinema" may have been an invention on the spur of the moment and entirely fictitious, or may at any rate point to a picture palace having been the place where the drug was passed to her. In any event, these cases, and the occurrence of others like them, suggest that a considerable trade is carried on in cocaine sold in small quantities to persons who make use of it themselves or in turn resell it to others. What the actual extent of the traffic is cannot be estimated with any degree of certainty. A tempting profit can be made out of it by unscrupulous and needy persons, and the small quantities from which this can be realised are easily concealed and transferred without attracting attention. It seems unlikely that such a trade can ever be stamped out or even substantially reduced by the arrest and punishment of petty agents or of a few individuals addicted to the vice, and the importance is evident of tracing the small quantities referred to above to the sources from which they are derived.

Poisoning as a Practical Joke.

At the Central Criminal Court recently a sentence of 18 months' imprisonment with hard labour was passed on a man named Stopher, who pleaded guilty to a charge of inflicting actual bodily harm, a charge of attempted murder being withdrawn. The prisoner was a ship's steward, who had at one time lodged in the prosecutor's house and was on friendly terms with him. He had, however, entered the house at night and taken some money, which he returned when requested to do so, and had also spread rat poison on some sandwiches which the prosecutor took with him when he went to his work. The prosecutor ate of the sandwiches, and drank tea in which, it was stated, rat poison had also been placed, and became ill. It was urged on behalf of the prisoner that what he had done was by way of a practical joke, devoid of criminal intent, but Mr. Justice McCardie said emphatically that if a jest or joke were introduced into the law as a defence to a criminal act no one would be safe, and added that as long as he sat on the bench he would never permit any man to say that he had stabbed or poisoned a fellow-man by way of a joke or whim. It is to be regretted that rat and beetle poison, weed-killers, and sheep-dips should afford to ill-balanced people ready means of endangering the lives of their fellows. At all events the claim to have done so as an exhibition of humour, or in ignorance of the probable result, is no longer open to them.

Hot Milk and Adulteration.

In the Divisional Court recently in the case of Herrington *v.* Slater the point at issue, according to the appellant's counsel, was whether a "glass of hot milk" asked for as such in a restaurant must consist of milk of the same quality as would be expected in milk not subjected to heat before sale. A glass of hot milk had been purchased by an inspector under the Food and Drugs Act, and the public analyst had found that it did not contain the necessary percentage of milk fat. He had also stated that genuine milk when boiled would not give such a result as he had obtained in the case under consideration. On proceedings being taken against the vendor it had been urged by the defence that milk necessarily lost some of its constituent parts in the process of boiling. The magistrates in the Isle of Wight who heard the case had accepted this view, and had found as a fact that the liquid had ceased to be milk because it had been heated, and therefore could not be treated as milk for the purpose of the prosecution. They accordingly dismissed the charge. The local authority having appealed, the Divisional Court allowed the appeal and remitted the case for reconsideration by the magistrates, saying that they had come to a conclusion which, in the opinion of the court, was wrong in law. The Lord Chief Justice said that the liquid supplied was milk which had been adulterated and did not contain the proper percentage of milk fat. It was clear that it was not hot "milk," and it was no answer to the charge to say that it had been heated. Mr. Justice Darling and Mr. Justice Acton agreed. In comment, it may be pointed out that in like cases a public analyst may be trusted to make allowance for

such changes in the milk as boiling would bring about. This, it will be observed, he did in the case under comment, expressly stating that the milk was defective to a degree above what might reasonably be expected after the treatment it had undergone.

Gordon v. *Goldberg.*

In this case H. J. Goldberg, practising dentistry in Cavendish-street, but not upon the Dental Register, was sued by Mrs. H. Gordon, a widow nearly 80 years of age, for damages for negligence and unskilfulness in making for her a set of artificial teeth. The plaintiff had consulted the defendant in the absence of her usual dentist, who was serving in the army, and the defendant, whose advertisement describing him as "D.D.S. American Dentistry," had attracted her, had made her two sets of teeth. She had paid sums of £31 15*s.* and £40 in respect of these; neither had fitted her and she was suffering great pain, when she eventually consulted Mr. A. White. His evidence was to the effect that the teeth did not fit, being wanting in articulation and adaptation between the upper and lower jaws, and that it was impossible to re-adapt them. The defendant acknowledged, in cross examination, that he had been fined £20 and £10 costs at Nottingham on account of an advertisement in which he had made use of the title "dentist." He denied other charges put to him, and professed himself ignorant of mention of himself which, counsel suggested, had appeared in *Truth*. Mr. Justice Rowlatt, in giving judgment for the plaintiff for £65 and costs, said that when people went to dentists they expected and contracted for skill, not for infallibility. In judging skill account might be taken of the charges made, and the defendant had charged very handsomely, but the teeth that he supplied were utterly unsatisfactory.

CONTROL OF VENEREAL DISEASE.

All-American Conference on Venereal Diseases.

A SUGGESTION was made a year ago at the Cannes Conference of the League of Red Cross Societies for a series of "regional conferences" to discuss the World's Health. The first of these is to be held at Washington from Dec. 6th–11th, the Control of Venereal Diseases being selected as the subject for consideration. The choice is evidence of a just sense of proportion, for the group of venereal diseases is at present the greatest menace to the health of the world. Promiscuous sexual intercourse is believed to be on the increase, despite the numerous propaganda dealing with venereal disease, and it is incumbent upon those who recognise the facts to employ every measure to ensure scientific treatment and limitation of these diseases. The Washington Conference is to be representative of the American Nation as a whole, and will be held under the auspices of U.S. Interdepartmental Social Hygiene Board, U.S. Public Health Service, American Red Cross, and the American Social Hygiene Association. The following is a brief outline of the procedure:—

The presidential address will be given by Dr. William H. Welch, of Johns Hopkins University. Morning sessions will be devoted to the consideration of the Scientific Basis of Control Measures. (Tuesday) Present status and recent progress in medical investigation. (Wednesday) Education as a means of control. (Thursday) Law enforcement and protective social measures. (Friday) Social influences. (Saturday) Formulation of reports. Afternoon sessions will deal with Administrative Measures in the Control of Venereal Diseases in the United States and Other Countries. The relationship between official and extra-governmental agencies will be considered. At evening sessions will be presented Authoritative Summaries of the Work in Venereal Disease Control. One problem to engage consideration is, On what basis, from a public health point of view, should the State attempt to govern the issuance of marriage licences? (We may remind readers that in the United States the issuing of marriage licences is in the hands of the separate States and is not under Federal control.)

Arrangements will be made for delegates to visit places of scientific interest in or near Washington. Further information from the executive secretary, All-America Conference on Venereal Diseases, 411, Eighteenth-street, N.W., Washington, D.C.

No time should be lost in following this example. The time is over-ripe for a national conference dealing with the control of venereal diseases. The papers read and the discussions which might follow would in themselves be valuable, but the chief importance would lie in a general recognition of the fact that the nation as a nation had met to discuss a question of urgent national value and importance. Such a conference would show the public that, notwithstanding differences of opinion in detail between the various representative bodies dealing with venereal diseases, there is unity in the desire to investigate and to eradicate a national sore.

Wassermann Interpretation.

We hope that we are justified in the belief that there is an increasing appreciation of the danger attaching to the purely empirical interpretation of the result of the Wassermann reaction in relation to syphilis. The tendency to base an opinion as to the necessity of administering treatment upon data derived alone from the ability of the serum to fix complement, apart from clinical consideration, already has much to answer for. But there is another and, we believe, a greater danger associated with the use of this valuable reaction. The training which the medical student of to-day is receiving in clinical pathology and bacteriology has led many practitioners to undertake investigations which a year or two ago would have been omitted or handed over to specialists. Speaking generally, such a tendency makes for good, but there is a limit which every wise practitioner will realise. No one should conduct complement-deviation tests unless he has had a thorough training in the technique and is in daily practice at it. The test is one in which a high degree of delicacy and judgment is requisite for success, and on these requisites depend the health, happiness, and even the life of a fellow creature.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A Case of Plague in Dublin.

A CASE of bubonic plague has occurred recently in Dublin, the first recorded, at any rate, in modern times. A young woman a few weeks ago sought relief at one of the city hospitals for an acute swelling in the groin. The constitutional disturbance was greater than any ordinary glandular infection would account for, the temperature being 105° F. The surgeon excised the inflamed gland and submitted it to bacteriological examination. The infection was proved to be bubonic plague. The source of the disease has not been traced. The patient lived near the docks and was in the habit of fondling a pet cat and keeping it on her bed at night. The cat had the usual feline habit of occasionally absenting himself from home for a few days at a time, and it is suggested that these expeditions were in part devoted to rat-hunting about the docks. The patient is progressing satisfactorily, and there has been no further spread of disease.

The British Red Cross Society and Collections in Ireland.

Some annoyance has been caused in hospital circles in Ireland by an attempt made by the Joint Committees of the Order of St. John and the British Red Cross Society to collect funds in Ireland on the day—the second Sunday in November—which has been for 40 years devoted to collections for the Dublin Hospital Sunday Fund. This action of the Joint Committees in London was taken in opposition to the definite advice of the Joint Committees of the two societies in Dublin, which is coöperating in the special appeal being made in Ireland at present on behalf of the Dublin hospitals.

Nov. 2nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Edinburgh University Rectorial Election: Mr. Lloyd George Returned.—Earl Beatty's Farewell Address.

THE final stage of the Rectorial Election was reached on Saturday last, when polling took place. Mr. Lloyd George was elected by a majority of 1255 votes over his opponent, Professor Gilbert Murray, the figures being 1764 to 509. For several weeks previously the election campaign had been carried on with all the customary vigour, and it ended with the traditional "combat" in the old quadrangle.

Earl Beatty, the retiring Lord Rector, delivered an address on Oct. 28th in the McEwan Hall, the subject being "Sea Power." The hall was filled to its utmost capacity, and Earl Beatty had a most enthusiastic reception.

Earl Beatty said that our own great Empire was the outstanding example of one that had been created by sea power. Little time was devoted to this aspect of history, though much of practical value could be learnt from it. They were accustomed to associate sea power wholly with war, but it meant more than the possession of fighting fleets, though it could not exist without them. The fleets always had been closely related to the commercial prosperity of the country. The prosperity—indeed the existence—of the country depended upon the mercantile marine, and protection of the mercantile marine was the primary duty of the fleet. We possessed a great asset in a population endowed with a sea sense and sea courage. This, bred of our insular state, had been handed down and cultivated through the ages, and had proved of incalculable value from the days of Spain's greatness until the present day. Sea power in war was the principal means by which external pressure could be exercised, and, per contra, by which it could be resisted. The dependence of Britain upon the sea was no modern discovery. Sea power enabled us to obtain access to the markets of the world even in war, and the deficiencies of a bad harvest in our own islands could be made up by buying where the harvests were good. For the maintenance of sea power a mercantile marine of our own was essential; it was the principal reserve of seamen for the fleet, and its ships acted as transports for our expeditions. If we lost our ocean trade and our sons abandoned the calling of the sea, then, notwithstanding our fighting fleet, we should not remain what our ancestors made us—a great sea power. Earl Beatty then gave examples of the influence of sea power in the destinies of the world and how it had defended our liberties and those of others. Sea power meant security, and that was essential for peaceful development. It was therefore a great power for peace; if wisely used it was unaggressive itself and was a shield against aggression. History showed no instance of sea power once lost being regained. Only by studying the lessons of the past and applying them to present-day conditions could we fulfil the destinies of the Empire.

After the address the Lord Rector was "chaired" to the University Union, where he was entertained to luncheon.

Edinburgh University.

The number of students at the University as at Oct. 20th was 4192, compared with 2438 at the same date in 1913. The greatest increases are in medicine and in science. Medical students now number 1578, as against 874 in 1913, while the science figures are respectively 946 and 332. In addition, a considerable number of those desiring to study medicine have had to have their admission postponed on account of lack of accommodation. The total number of students in all faculties is about 1000 more than the highest pre-war record.

Edinburgh Royal Infirmary: Astley-Ainslie Bequest.

Mr. David Ainslie, who died in 1900, directed his trustees to allow the income of his estate to accumulate for 15 years, and then with the capital so acquired to erect, endow, and maintain a hospital to be called the Astley-Ainslie Institution for convalescent patients from the Edinburgh Royal Infirmary. At May 16th, 1916, when the 15 years expired, the sum available amounted to £548,761. Owing to war conditions the trustees were unable to make progress with the scheme, and had perforce to continue with the accumulation of the income. A site has now been acquired and the scheme will be proceeded with. On Oct. 19th a petition came before the Court of Session for approval of a deed of constitution and trust. It is pointed out that the scheme will be a most valuable adjunct to the Royal Infirmary, but that, as it is separately financed, the bequest in no way relieves the monetary requirements of that institution.

Glasgow Western Infirmary.

The managers of Glasgow Western Infirmary have issued an appeal for funds, and ask for £40,000 to meet the anticipated deficiency on this year's working. The appeal is necessitated by the increased cost of living, of medical and surgical stores, and of wages. Shortened hours for the staff have also necessitated an increase in personnel. The invested funds available are now only sufficient to meet about two months' ordinary expenditure, and unless additional support is given the infirmary cannot be carried on in its full efficiency. The cost of maintenance in 1913 was £42,800, while in 1919 it had risen to £80,667. The expenditure for the current year is expected to exceed that of last year by at least £20,000.

Nov. 1st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

British Help for Vienna Hospitals.

THE "British Vienna Emergency Relief Fund" has done very noble work here in assisting our public hospitals with valuable gifts, thereby contributing materially to the improvement of conditions of general health. The international committee for assisting the Vienna hospitals has ascertained the amount of milk, fat, and rice necessary for these institutions, and has made arrangements to supply 5000 cases of condensed milk, together with quantities of cod-liver oil and flour. A sum of 1,000,000 kronen (£1000) has also been distributed for the use of out-patient departments. Peanut butter, tapioca, chocolate, biscuits, and cocoa are stocked in the warehouse of the Emergency Relief Fund in sufficient quantities to ensure a constant, though moderate, supply of these unusual delicacies for the sick of the poorest class. The American Red Cross and Dutch philanthropists have also done a great deal of charitable work in the same direction.

Report of the Minister for Public Health.

A booklet published by Professor Tandler, the Minister of Public Health, reports the results achieved during the year May, 1919, till May, 1920. It can justly be claimed that, in spite of serious difficulties, much good has been done. The number of hospital clerks and attendants in a series of military infectious hospitals was reduced, and the hospitals were turned into asylums for invalids and defective children, and into evening schools. The malaria hospitals were dispensed with, as the disease is now practically stamped out in Vienna. Full explanation is given of plans for the Public Health Service, for the new Vaccination and Midwives Acts, and for the new Codex Alimentarius. The last-named is an especially urgent necessity on account of the sale of numerous substitutes and supplementary articles of food. School physicians and many persons occupied in infant and maternity welfare work were recruited for the Ministry and trained at its expense. The cost of sending over 100,000 children out of Austria, and of moving 40,000 within its borders was also borne by the Ministry. Importance is attached to prophylactic measures against tuberculosis. Two large tuberculosis institutions were taken over by the State, and a special sanatorium with 240 beds was opened for children suffering from bone tuberculosis; there are now, in addition, five minor similar homes. All larger hospitals have maintained a ward and an out-patient department for venereal diseases, and numerous dispensaries and ambulatories for these patients have been opened in various districts of Vienna and in all larger towns and villages. Ambulatories for scabies had also to be opened in Vienna. Numerous new general hospitals were established in the country towns, especially in mountain districts, where they were badly

needed. A new Act dealing with the practice of medicine and the medical profession is in active preparation, and Acts concerning dentists, apothecaries, and the panel system are under consideration. It is a fair record of work for one year, showing, however, the backwardness of the previous system in spite of all efforts on the part of the medical profession and of others alive to the requirements of public health.

A New Dispute Between Practitioners and the Krankenkassen.

The constant rise of the cost of living has recently prompted the doctors of the sickness insurance clubs or "Krankenkassen" to demand an increase of payment from these bodies. The salaries and fees of all clerks and officers of these panel institutions were lately regulated in such a way as to ensure to them a modest living, but the medical men were forgotten. Their demands were met with the objection that there was no money available for the purpose; thus a doctor's fees were less than the present salary of the worst-paid clerk—i.e., 19,000 kronen as compared with 24,000 kronen. The organisation of the medical profession finally took the matter up and demanded a decided increase of fees for the panel doctors. The following were asked for: 100 per cent. increase of the present fixed fees, payment of the office rent by the Krankenkasse, and a yearly additional sum of 6000 kronen for depreciation of instruments, linen, and other equipment. These demands were refused. Thereupon a strike of doctors was contemplated and all arrangements were made to ensure its effective working. This plan was adopted with reluctance, but its necessity was clearly proved by the fact that the obstinate resistance of the leading officials of the Krankenkasse was due not to lack of funds, but to lack of goodwill. Negotiations between the two parties continued to be held from time to time, but soon they were interrupted. Only after Government interference, and at the last moment, was an understanding reached. The clubs granted 80 per cent. of the demands of the doctors, so that the lowest payment of the doctors now amounts to 24,000 kronen, the highest to 56,000 kronen, per annum—equivalent at the present rate of exchange to £24 and £56 respectively. The purchasing value of 24,000 kronen in this country is, however, higher than that of £24 in England. Furthermore, night-calls, operations, and consultations are not included. Humanitarian considerations rendered the obtaining of agreement to the strike a difficult matter, and praise is due to the leaders of the medical organisation in that they succeeded, by powerful persuasion, in enlightening opponents as to the justice of their case.

Charges of Cruelty against Military Doctors.

One of the first results of the revolution was an investigation into breaches of law committed by officers during the war. Among the latter, medical men were charged with cruelty towards and lack of care of their patients. A number of professors, surgeons, aurists, ophthalmologists, internists, and especially neuro-psychologists, were charged with cruelty by soldiers who felt or still feel themselves wronged by them; the majority of charges concerned pronouncements of fitness or unfitness for active service of men coming from the front or newly recruited. Many pamphlets were published in connexion with this matter. Needless to say, gross exaggerations were at the base of all these charges. For instance, treatment with the faradic current of hysterical or malingering persons was stigmatised as "inhuman." So far as medical men were concerned not a single really criminal instance was revealed. Nothing but severe inconvenience to the accused resulted from the investigation. As the committee of investigation was widely representative, and some of its members not too friendly to the medical profession, the exculpating verdict was received with satisfaction by all classes of the population.

Oct. 20th.

A CORNISH CENTENARIAN.—Mr. Edmund Turner Pearse, of Linkinhorne, Cornwall, died recently at the age of 105.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

The Clinical Congress of American Surgeons.

THE Congress of the American College of Surgeons was opened on Oct. 11th at Montreal, Canada, in the presence of a large assemblage. Dr. William J. Mayo, the retiring President, handed over the chair to the President-elect, Dr. George E. Armstrong, C.M.G., of Montreal. The new President of McGill University, General Sir Arthur Currie, delivered an address of welcome, saying that Montreal was now the convention city of America, part of its popularity being no doubt due to "Professor Johnny Walker." Referring to the bond of common sacrifice between all English-speaking peoples, he said that the bond was not only of the dead that unite, but of the living as well. General Currie spoke of the two million Canadians resident in the United States, but owing to the turning tide of immigration there would soon be two million Americans resident in Canada.

After the presentation of the accredited delegates from Great Britain, Sir Berkeley Moynihan, Sir William Taylor, and Mr. A. Carless, the President then called upon Sir Berkeley Moynihan to present to the American College of Surgeons the mace which he and his two colleagues brought as the gift of the consulting surgeons of England.[1] President Armstrong voiced the appreciation of the College of the care and thought which had been bestowed on the choice and design of the mace. Sir Berkeley Moynihan then delivered the oration to the late Dr. John B. Murphy. He said that Dr. Murphy possessed not only a great personality but a strange and subtle power in impressing his own character upon all. He was beyond all question the greatest clinical teacher of his time, and he was admired and respected perhaps more than he was loved. He came to the clinic with full preparation, and as he argued, questioned, and indulged in repartee and anecdote, it all seemed like an exhibition of intellectual mechanism. In operation he was apt to be slow, believing in safety rather than brilliance, working quietly and deliberately, without ostentation. All the time he would talk and explain in detail. He did not fail to tell of his mistakes as well as of his successes. As a writer and speaker Murphy was prolific, and while he spoke everything else was forgotten. Though never so eloquent as Lincoln, he had one thing in common with the great martyred President—when either spoke they made everything else seem commonplace. Perhaps, like other great men, he failed in training someone to fill his place. Murphy must for ever stand at the head of a long line of the leaders of medical thought and research. Sir Berkeley Moynihan concluded with a testimony to the inspiration the great surgeon had received from the companionship and presence of Mrs. Murphy. "While I lay my wreath of laurels to do him honour, and of rosemary to do him reverence, I want her to see me placing it in the memory of him."

The second day of the Congress began what may be called the serious business. The Fellows divided up into groups to take part in practical surgical work at the various hospitals and clinics throughout the city, and in the afternoon papers were read and discussed. During the course of the Congress the eighth annual convocation was held, when some 700 graduates from the United States and Canada were admitted to membership. The Canadian Army Medical Exhibit, prepared by special permission of the Government, was held in the McGill Medical Building. In addition there was a symbolic painting, an acquisition of the Medical Faculty of McGill—"In Flander's Fields"—in memory of the author of the poem from which it takes its name, Lieutenant-Colonel John McCrae, M.D. In the Canadian Army Medical Exhibit there were wet specimens given by Major F. B. Gurd showing the effects of wounds on different parts of the body and conditions produced by

[1] A photograph of the mace, with an account of the ceremony and the speeches made, was published in THE LANCET of Oct. 16th.

gas gangrene; an exhibition of German medical supplies captured in the field; specimens of bone showing the process of repair; an exhibition by Professor A. Peyron, of the Pasteur Institute, Paris, showing the variety of forms cancer may take; sphagnum moss dressings; and a pictorial record of the work of the C.A.M.C. in France. Dr. Maude Abbott, curator of McGill Medical Museum, was in charge of the exhibition. There were also several copies of a memorial number of the *Canadian Medical Association Journal*, entirely devoted to the life and work of Sir William Osler.

Appointment of Professor of Biochemistry to McGill University.

Dr. A. B. MacCallum, who for many years was professor of biochemistry in the Medical Faculty of the University of Toronto, but for the past four or five years chairman of the Research Council of Canada, has been appointed to the new chair of Biochemistry in McGill University, Montreal.

Tuberculosis in Montreal.

There have been more than 900 deaths from tuberculosis in Montreal for the first nine months in 1920. The total deaths recorded were 1741, of which 444 were from influenza. These figures show the extent of the ravages of tuberculosis in spite of campaigns and much organisation.

Reputed Cancer Cure.

The Academy of Medicine, Toronto, has appointed Professor John J. Mackenzie, professor of pathology in the University of Toronto; Dr. H. B. Anderson, associate professor of clinical medicine, and a past President of the Academy and of the Ontario Medical Association; Dr. W. H. Harris, dean of Grace Hospital; and Dr. J. H. McPhedran, to investigate the claims for a cancer cure put out by Dr. Thomas J. Glover. The appointment of this committee was brought about by the Ministry of Public Health at Ottawa, who deputed the Deputy Minister, Dr. John Amyot, to bring the matter before a scientific body for investigation.

Oct. 24th.

SWITZERLAND.

(FROM AN OCCASIONAL CORRESPONDENT.)

An Official Medical Bulletin.

INCREASING financial difficulties have materially affected the medical profession in Switzerland as elsewhere. Swiss medical associations have for many years strenuously declined the system of payment per head and per year and have so far successfully insisted on payment for each visit, consultation, or service rendered. The minimal pre-war fees have been increased first by 30 per cent. and since July 1st by 60 per cent. Thus in the Canton of Zurich the minimal fee for an outside visit is now Fr.3·20 (or about 3*s.*) and Fr.2 (or nearly 2*s.*) for advice in the consulting room. However, the large workmen's associations are doing their best to overthrow these arrangements and to engage their own panel doctors. This has been the occasion for the issue of a new medical journal entitled the *Bulletin Officiel des Médécins Suisses*, devoted primarily to the material interests of the medical practitioner. It is to contain reports of cantonal medical societies, and of their negotiations with the authorities and with workmen's associations. From Oct. 1st last the Central Committee of Swiss Medical Men has taken over the management of this weekly journal with the aid of two medical men and a lawyer. The journal is sent free of charge to all Swiss medical practitioners.

The Provident Societies.

The number of members of the Swiss provident societies (Krankenkassen) continues to increase. On Jan. 1st, 1919, 825 societies existed, with 721,452 members, or nearly one-sixth of the population of Switzerland. The year before there were only 777 societies, with 629,927 members. On Jan. 1st, 1920, the number of societies had risen to 890. Of the 721,452 members, 413,404 were men, 213,090 women, and 94,958 children. As the wage limit, previously standing at £120 a year, is in abeyance, many well-to-do workmen with incomes of £200 to £300 enjoy the reduced medical fees, while the middle class, impoverished as in other countries, with difficulty pays the increased medical fees. The provident societies in 1918 received more than 17½ million francs (£740,000), but spent 24½ million francs (£990,000) owing to the severe epidemic of influenza; so that, notwithstanding a subvention of nearly 3 million francs (£120,000) from the Swiss Federal authorities, a heavy deficit resulted, following on a depreciation in the years 1918 and 1919 of the societies' total assets from an equivalent of £693,000 to £524,000.

Oct. 29th.

URBAN VITAL STATISTICS.

(Week ended Oct. 30th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 10·9, 10·7, and 10·9 in the three preceding weeks, further rose to 11·7 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 11·8, or 1·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 3·9 in Ilford, 5·4 in Southampton, and 6·0 in Lincoln, to 16·5 in Gateshead, 18·0 in Middlesbrough, and 19·9 in Hastings. The principal epidemic diseases caused 305 deaths, which corresponded to an annual rate of 0·9 per 1000, and comprised 185 from infantile diarrhœa, 65 from diphtheria, 22 from measles, 17 from whooping-cough, 15 from scarlet fever, and 1 from enteric fever. Measles caused a death-rate of 1·5 in Rhondda, 1·6 in Bath, and 2·2 in West Bromwich; and diphtheria of 1·7 in Hornsey and 3·0 in Swindon. The deaths from diarrhœa, which had been 208, 207, and 193 in the three preceding weeks, further fell to 185, and included 34 in London, 17 in Liverpool, 16 in Birmingham, 10 in Sheffield, and 8 in Middlesbrough. There were 5167 cases of scarlet fever and 2301 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 4859 and 2113 respectively at the end of the previous week. The causes of 29 of the 3995 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham and 4 each in London and Gateshead.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 12·8, 11·5, and 12·1 in the three preceding weeks, rose to 13·9 per 1000. The 345 deaths in Glasgow corresponded to an annual rate of 16·2 per 1000, and included 12 from infantile diarrhœa, 4 from whooping-cough, 3 from diphtheria, and 1 each from small-pox, measles, and scarlet fever. The 69 deaths in Edinburgh were equal to a rate of 10·5 per 1000, and included 3 from diphtheria and 1 each from scarlet fever and infantile diarrhœa.

Irish Towns.—The 111 deaths in Dublin corresponded to an annual rate of 13·9, or 1·2 per 1000 below that recorded in the previous week, and included 8 from infantile diarrhœa, 3 from whooping-cough, and 1 each from enteric fever and diphtheria. The 89 deaths in Belfast were equal to a rate of 11·2 per 1000, and included 4 from infantile diarrhœa, and 1 from whooping-cough.

HOSPITAL SUNDAY AT PLYMOUTH.—Oct. 24th was observed in Plymouth as Hospital Sunday. A strong appeal was made, and it is hoped that £1000 will have been raised for the Fund.

DONATIONS AND BEQUESTS.—Mr. Ernest Walter Bellhouse, of Cotswold Grange, Cheltenham, left £15,000 for charities, including a legacy of £50 to the Manchester Royal Infirmary. The ultimate residue of the estate will be divided between eight institutions, and amongst these are the Northern Counties Hospital for Incurables, Ancoats Hospital, and Children's Hospital, Pendlebury.—By the will of the late Mrs. Mary Jane Radcliffe the testatrix left £500 each to the Women's Ward of King Edward VII. Hospital, Cardiff, the National Society for Prevention of Cruelty to Children, and the Royal Society for the Prevention of Cruelty to Animals.—The late Miss Laura Marjoribanks, of Arundel, Sussex, has left by will £200 to the Earlswood Asylum for Idiots.—The West London Hospital, Hammersmith, has received, through the London Education Officer, a grant of £1067 7*s.* 11*d.* from the London Schools Hospital Fund.

The Services.

CIVILIAN PRACTITIONERS AND ATTENDANCE ON NAVAL RATINGS.

THE scale of fees authorised to be paid to civilian medical practitioners attending naval ratings who are taken ill while on leave has been revised as from June 1st, 1920. The fee for each visit, to include cost of medicine and weekly medical certificates, is advanced from 2*s.* 6*d.* to 3*s.* 9*d.* for a distance of under one mile; for a night visit (reckoned from 10 P.M. to 7 A.M.) the fee is 5*s.* 3*d.*; for visits over one mile the day fee is 4*s.* 9*d.*, and the night fee 7*s.* 3*d.*; over two miles 5*s.* 9*d.* and 9*s.* 3*d.*; over three miles 6*s.* 9*d.* and 11*s.* 3*d.*; and over four, but under five miles, 7*s.* 9*d.* and 13*s.* 3*d.* For greater distances an addition of 1*s.* for each mile over five by day, and 2*s.* by night. In very exceptional circumstances payment at a higher rate will be considered by the Admiralty.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Cmdr. J. M. Gordon to the *Excellent*, additional; Surg. Lieut.-Cmdr. G. R. McCowen to the *President*, additional, for Porton Experimental Station; and Surg. Lieut.-Cmdr. (D.) F. W. Paul to the *Impregnable*.

ARMY MEDICAL SERVICE.

Col. L. P. More, from the half-pay list, is restored to the establishment.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. F. W. Hardy retires on retired pay on account of ill-health contracted on active service.

The undermentioned relinquish the acting rank of Major:—Capt. M. Morris; temp. Capt. J. T. P. Wilson.

Capts. C. A. Bignold (granted rank of Major) and J. H. Sharpe resign their commissions.

To be temporary Captains: E. O. Gilkes (late temp. Capt.), R. W. Collum, B. H. Woodyatt, F. L. Dickson.

G. A. Clarkson and C. W. Bennett to be temporary Lieutenants.

Officers relinquishing their commissions:—Temp. Hon. Lieut.-Col. P. Macdiarmid (retains the honorary rank of Lieutenant-Colonel). Temp. Major (acting Lieut.-Col.) H. W. M. Tims (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: P. McCool, H. M. Grey, G. W. B. Waters. Temp. Capt. T. J. Richardson. Temporary Captains retaining the rank of Captain: W. P. H. Lightbody, J. N. Turnbull, J. Maguire, A. E. Wynne, A. Chalmers, E. T. Larkam, J. K. Manson, R. R. Pirrie, W. S. King, J. J. McConnell, A. H. Priestley, E. F. O'Conner, C. S. Stolterfoth, S. F. Cheesman, D. Cowin, J. Macqueen, J. T. Macnamara, F. E. Johnson, T. H. F. Roberts, B. Langran, C. W. C. Robinson, R. J. Allsopp, E. Duke, T. P. Noble, P. C. C. Smith, H. H. Castle, D. Gaston, W. Mercer, S. Oliver, J. O. Garland, A. H. Ward, E. F. Lawson, A. Leigh, J. T. R. MacGill, G. W. M. Smith, R. T. Raine, F. W. Harlow. Temporary Lieutenants retaining the rank of Lieutenant: J. V. Coghlan, M. J. Woodberg, D. P. Fitzgerald, A. M. Moll.

TERRITORIAL FORCE.

Lieut.-Col. T. McDermott is placed on retired pay.

Capt. (acting Major) J. A. Cooke relinquishes the acting rank of Major on ceasing to be specially employed.

Major M. B. Ray to be Lieutenant-Colonel and to command 2nd London Casualty Clearing Station.

Major W. F. Munro (from T.F. Res.) and Capt. J. Taylor to be Majors.

Capt. R. Davidson to be Adjutant of the R.A.M.C. School of Instruction, South Midland Division (T.F.).

Capts. (late R.A.M.C.) J. MacG. Johnson, W. Ainslie, and W. R. Watt to be Captains.

Capt. H. Mather (late temp. Capt., R.A.M.C.) and Lieut. G. A. Fisher (late King's Royal Rifle Corps) to be Lieutenants.

Major Y. T. G. Moore (retains the rank of Major) and Capt. E. L. Martin (granted the rank of Major) resign their commissions.

Capts. C. H. Gregory, A. F. Perl, R. Raffle, and R. K. Merson resign their commissions and retain the rank of Captain.

TERRITORIAL FORCE RESERVE.

3rd Northumbrian Field Ambulance: Major A. T. Sissons to be Major. Capt. V. J. White to be Captain.

ROYAL AIR FORCE.

Medical Branch.—Capt. J. D. Cherry is transferred to unemployed list.

INDIAN MEDICAL SERVICE.

Lieut. Kombur Ramaswamy Krishnaswami Iyengar to be Captain.

The King has approved the retirement of Major H. C. Brown.

Dr. W. FitzGerald, Deputy Commissioner of Medical Services, North-Western Region, Ministry of National Service, and Dr. H. J. Ley, Medical Services, Christchurch Auxiliary Hospital, Hampshire, have been appointed Officers, and the Rev. E. E. Lavy, M.D., has been appointed a Member, of the Most Excellent Order of the British Empire for services in connexion with the war.

Correspondence.

"Audi alteram partem."

THE HEREDITARY FACTOR IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I have read with great interest, in your issue of Oct. 30th, the comments of Professor Karl Pearson, F.R.S., on my paper, Tuberculosis in Primitive Tribes and its Bearing upon Tuberculosis in Civilised Communities,[1] and I feel that these comments call for a reply. I may say at once that Professor Pearson's communication shows me that I misunderstood his views. I took the expression "inherited diathesis" to mean "constitutional inability to resist tuberculosis inherited by the offspring from tuberculous parents or ancestors." It was against this conception that my criticisms were directed. I did not perceive that the inherited diathesis postulated by Professor Pearson was such as to be commonest where there is no tuberculosis and least common where tuberculosis is rife. Such an "inherited tuberculous diathesis" would, of course, be a bodily character quite unconnected with tuberculosis, but for the existence of which the human tubercle bacillus would be the only, and a specific, test. This proposition may, I think, be assailed from many directions, but I freely admit that it is not in any way touched by the argument which I brought against what I believed to be the accepted view of "inherited diathesis." Professor Pearson is right, too, in supposing that, in discussing the incidence of tuberculosis in children of tuberculous parentage, I failed to realise that the "inheritance" dealt with in his data was "one in which the average age at onset was from 25 to 30 years." I do not see that this has any bearing on my argument as, in these circumstances, there may have been intermittent reinfections and auto-infections from childhood on through early adult life, culminating in a breakdown of immunity under the stress of the onset of sexual function and the necessity to earn wages, factors that tell most severely at the ages mentioned. Such a break down of immunity might be expected to be commonest in those whose initial infection had been most massive, frequently the earlier born, according to my argument.

Admitting that Professor Pearson's theory of "inherited diathesis," properly understood, covers the isolated fact of the marked liability to infection shown by certain primitive tribes, I still hold that the theory of "absence of acquired resistance" is equally applicable. Either theory will meet the case. Here is a dilemma which must arise from time to time in statistical inquiry. A similar instance may, I think, be found in the magnificent statistical researches of Dr. J. Brownlee,[2] which have brought to light the existence of two types of mortality in pulmonary tuberculosis, the one reaching its maximum in the "young adult," the other in the "middle age" period of life. These two types of mortality may be equally well explained by Dr. Brownlee's suggestion that there are two types of tubercle bacillus with different clinical manifestations, or by my suggestion that there are two types of community, one being relatively "virgin soil," the other "sensitised" and relatively resistant soil to the same type of human tubercle bacillus. Here a final answer must be sought, not only in "hard statistical reduction of data," but also by careful and comprehensive laboratory work in typing bacillary strains from "young adult" and "middle age" cases. The questions at issue are too urgent and too vital to be left to any one line of inquiry. It has been proved beyond question that relatively susceptible animals, including man, are able to acquire a relatively high degree of resistance to tuberculosis through graduated infections with the tubercle

[1] International Journal of Public Health, September, 1920, vol. ii., pp. 137–171.

[2] An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland. Medical Research Committtee. Special Report Series, No. 46. 1920.

bacillus. Whether an increased power of acquiring resistance is, or is not, transmissible as a hereditary character is a point on which statistical research may help to throw light. For the moment, what we most need is a fuller knowledge of the factors underlying immunity in tuberculosis to guide us in exploiting this power of acquiring resistance so that it may be used in prophylaxis and treatment.

In conclusion, I hope that Professor Pearson will accept my sincere apologies for an ill-expressed sentence which he reads as a "covert charge of manipulating theory." I hasten to assure him that such an idea never occurred to me. I have read Professor Pearson's papers with great interest and, although my unfamiliarity with statistical science led me to a misapprehension of some of his conclusions and my own observations and studies have obliged me to differ from others, I have nothing but respect and admiration for his great contributions to both medical and general science.—I am, Sir, yours faithfully,

S. LYLE CUMMINS,
Colonel, A.M.S.; Professor of Pathology, Royal Army Medical College, London.

Oct. 31st, 1920.

THE ELIMINATION OF MILK-BORNE DISEASE.

To the Editor of THE LANCET.

SIR,—Although the outstanding facts of the relationship between milk and disease are well known to the medical profession, it may be desirable to summarise and re-marshal them in order to develop and reinforce the argument to be submitted.

In the Second Interim Report of the Royal Commission on Tuberculosis, pages 36 and 37, issued in 1907, the following appears:—

> A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cows' milk containing tubercle bacilli. The presence of tubercle bacilli in cows' milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food.

And on pages 5 and 6 of the Third Report, 1909, the following:—

> Tuberculosis involving the udder is comparatively common in cows, and in such cases their milk always contains tubercle bacilli, and is therefore dangerous for human beings consuming it. We found that the milk of cows obviously suffering from tuberculosis contained tubercle bacilli. The presence of tubercle bacilli in the milk of cows clinically recognisable as tuberculous confirms the opinion we expressed in our Second Interim Report that the milk of such cows must be considered dangerous for human beings.

Professor Delépine has established by animal experiment, not merely by bacterioscopy, that more than 6 per cent. of the milk-supply of Manchester contains virulent tubercle bacilli. Statistics are unattractive. No need to cite the figures furnished from Somerset House annually showing the mortality caused by human tuberculosis, because every practising physician is only too familiar with its ravages. Epidemics of typhoid and scarlet fevers, diphtheria, and epidemic sore-throat have frequently been traced to infected milk.

The following statements are authoritative: they are taken from Bulletin No. 56 of the United States Public Health Service, issued in 1909.

> Trask compiled a list of 179 epidemics of typhoid caused by milk, 43 in Great Britain: of scarlet fever 51, in Great Britain, 26: of diphtheria the numbers were 23 and 8 respectively. It was not claimed that these lists were complete in that year. "Epidemic sore-throat" and "summer diarrhœa" are well known to be caused by impure milk, and there is evidence, not perhaps conclusive, that epidemic anterior polio-myelitis is associated with milk.

Knowing as we do that milk forms an excellent culture medium for micro-organisms, it would rather be a matter for surprise than the reverse if milk—carelessly handled and produced under generally unsatisfactory conditions—did not from time to time cause epidemics of these maladies. In the light of bacteriology we must agree that we can only hope to keep a fluid of such composition as milk free from pathogenic organisms by the exercise of a degree of care not called for in the case of other foods. Moreover, remembering this, we are the more likely to understand the very real difficulty of securing a safe supply.

It may be well to interpolate here the reflection that milk is the most important of all aliments. The saliva of infants less than 5 months old contains no ptyalin. Milk is essential for them. It constitutes the best form of diet for children generally. Those of us who have encountered cases of serious chronic disease who could not for any reason take milk will have special reason to appreciate its importance in the regimen of all invalids. But this all-important nutriment is produced and distributed under conditions which simply won't bear thinking about. Mistals are stables. That does not seem to be a startling thing to write. But food should be dealt with in places where the standard of cleanliness is that of kitchens. Horses are groomed daily, cows rarely or never. Why not? The consequence of this lack of care is that the farmer finds it necessary to "strain" his milk before pouring it into a churn in order to remove the larger particles of manure which it contains. And so on. All along the route from the udder to the consumer's mouth the care given to keeping this all-important fluid free from contamination is ridiculously inadequate. One should not apply such an adjective to a system fraught with consequences so tragic. Byres should be clean, airy, light; of adequate size in relation with the number of kine they are to house; their walls and floors should be of impervious material; the latter should fall with a uniform gradient to a properly constructed drain. An abundant supply of pure water is essential for several purposes—e.g., washing utensils, flushing floors, walls, and drains, and cleansing the persons of milkers. The commonly used open milk-pail should be replaced by others having lateral openings. The beasts should be groomed and the flanks and udders wiped over with a damp cloth immediately before milking. The milk from emaciated animals and from those suffering from mastitis should be rejected. The herd should be tested periodically (at least once yearly) with tuberculin. Precautions are essential to ensure that the test is a real one. Reacting individuals should be segregated. And, finally, the milk so obtained must be bottled and delivered unopened to the consumer.

By these means it has been demonstrated that milk can be obtained—not absolutely pure and free from contamination—but which may be regarded as reasonably safe. Farmers and dairymen must be paid adequately for their intelligence, care, labour, and outlay. Manifestly so. The result is that milk so produced is so costly that only the rich can afford to buy it. Thus, while one may realise that pure raw milk is the desideratum, one must be driven to the conclusion that it is idle to-day to advocate the provision of a supply of this quality for the people. Simply it is impracticable. We must be content to make haste slowly. By moderation in our demands, contenting ourselves with one step at a time, we may hope at last to attain the goal of our ambition, and secure a safe, non-disease-producing supply of raw milk for the people.

Meanwhile it would seem to be our duty as a profession trusted by the people—and rightly trusted—to insist that a safe milk, and only a safe milk, be placed on sale. By pasteurisation we can gain this security for all. Milk held at a temperature of 155° F. for 20 minutes is a safe human food. None of its digestibility nor nutritive value is lost. Its taste remains unimpaired. The increase of cost is inconsiderable.

Very much greater attention to this very important subject has been given in the United States than here. In New York for the last five years, and in Chicago for a shorter period, only pasteurised and grade 1 certified milk may be sold to the general public, and in some 95 per cent. of the larger towns pasteurisation, while not compulsory, is enjoined. In Bulletin No. 517, April, 1919, of the United States Public Health Service, Surgeon-General Rupert Blue made the following pronouncement: "A system of inspection and efficient pasteurisation will protect the people from milk-borne disease."

One need hardly cite authorities to secure the adherence of trained men to the doctrine that pasteurisation destroys pathogenic micro-organisms, but the experience of the Honourable Nathan Straus in New York leads one to look around for convincing argument to reinforce the mere statement of fact. He started the advocacy of pasteurisation 27 years ago, and lent the force of example to those of argument and persuasion by distributing annually in that city bottles and glasses of this safe kind of milk literally by the million. He zealously year by year preached the need for general measures to be adopted. Yet, as I have stated, it is

only recently that success has crowned his efforts. It therefore behoves us not to view the subject lightly, nor to under-estimate the difficulties in the way. It is not by a mere statement of the seriousness of the position that we shall succeed in the good work.

An exceptional opportunity presents itself at the moment. There is a Bill in Parliament during this session to amend the Milk and Dairies Act of 1915. One of its provisions is (3) (2) "for requiring milk to be treated by such process or processes as may be prescribed in the Order." The Order referred to is authorised by Section 1 of the principal Act. It will be agreed that the authority of an Order issuing from a Government department—however great may be the confidence of the public in that department and however well founded may be that confidence—must lack somewhat of the weight which attaches to an Act of Parliament itself.

With these reflections in my mind, and deeply impressed by the very great importance of the subject, I desire to suggest to everyone, and, of course, particularly to my confrères, that we should seize every opportunity to attempt to secure an amendment to the Act—slight, but important—so that pasteurisation of all but graded and certified milk be provided for in the Act itself. Moreover, "pasteurisation" needs to be carefully defined. There are processes for the "commercial" pasteurisation of milk which are simply shams.

The need for enlightenment, and the persistence of obscured judgment even in high places, is well shown in a report[1] of an appeal from a decision of the Ryde justices, dismissing a summons against a milk vendor for selling milk containing (as well as dirt) dung, and "swarming with bacteria and microscopic organisms." The Lord Chief Justice of England with two other judges dismissed the appeal, thus establishing the legal right of milk vendors in this land to sell milk containing manure. H.M. Judges seemed to be determined in their decision by the fact that the contamination was of microscopic character. Apparently they are unaware that tuberculosis and other fatal maladies are caused by living particles which are microscopic or ultra-microscopic. All the more need that we "illuminati" should spread abroad the simple facts of this all-important subject.

Let us therefore write at once to our representatives in Parliament setting forth shortly the simple facts in the most telling manner.

I am, Sir, yours faithfully,

S. G. MOORE,

Oct. 26th, 1920. Medical Officer of Health, Huddersfield.

HEREDITY AND CELL STRUCTURE.

To the Editor of THE LANCET.

SIR,—Dr. Alexander Paine personally and yourself by implication in your leading article on the subject have suggested discussion of his very interesting paper on the Origin of Cancer published in your columns on Oct. 2nd. I therefore venture to offer a criticism, since it seems to me that the whole theory developed therein depends upon an assumption which in the present state of our knowledge is not only unproven but almost disproved. Dr. Paine in his paper suggests (as I understand him) that a noxious body—e.g., a bacterial toxin—may in certain circumstances be capable of so injuring a tissue cell that its (the cell's) activity is interfered with, but be incapable of destroying it. By analogy with many observations in other branches of science it is assumed that in such a case the higher activities of the cell suffer first and most seriously—i.e., that the particular function of the cell is limited or determined, and consequently that the energy formerly expended in performing function is now used up by increased reproduction.

Consider now one individual cell which is suffering these changes: take, for instance, a cell in the mammary gland. A chronic mastitis occurs and subsequently this cell is so damaged that its power of forming milk is lost, while its power of reproduction is not only preserved but increased by as much energy as was formerly used in the formation of milk. It therefore divides and produces two daughter cells which, like their parent, are incapable of performing the functions properly appertaining to them, and are capable only of multiplying. This, however, can only be brought about in one of two ways—either the daughter cells have inherited a characteristic acquired by the parent cell, viz., predominance of reproduction over function, or in the nucleus of healthy cells there are two distinct parts, one regulating the higher functions of the cell, the other regulating reproduction and the former part has been destroyed. The latter hypothesis is that of Oertel, and is open to the objection that the existence of two such parts in a nucleus has never yet been demonstrated. Moreover, even had they been proved to exist the explanation is open—though not, perhaps, quite so obviously and definitely—to the same objection as the former hypothesis. The balance of evidence is overwhelmingly in favour of the contention that acquired characteristics cannot be inherited by the offspring. Granted that this is not yet proved beyond all question, yet it is obviously absolutely unjustifiable to assume that the contrary is true.

And every theory that postulates an extraneous cause as the origin of cancer is faced by this same difficulty, except that cause be a bacterial or protozoal virus, which itself multiplies and progressively causes these changes throughout a continually increasing mass of tissue, so that it is no longer a question of one cell being injured and reproducing others similarly injured. Such a supposition is, however, not attractive, and there is no convincing, scarcely even suggestive, argument in its favour. Hence it would appear that only one possibility remains—that cancer is due not to a change produced in a hitherto normal cell, but to some inherent defect in the germ plasm. This term is admittedly indefinite, but is sufficient to give an idea of the fact at which I am aiming. It is used in its original sense as denoting that part of the germ cell of which the chemical, physical, and molecular structure enables the cell to become, in appropriate circumstances, a normal, fully-developed individual of the same species.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 24th, 1920. STANLEY WYARD.

THE CEREBRO-SPINAL FLUID IN TABES DORSALIS.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 23rd Dr. Judson Bury, in his interesting article entitled "Symptoms Resembling Tabes Dorsalis Arising after Anti-typhoid Inoculation," raises again the question as to whether true tabes dorsalis can occur without syphilis. I had hoped that the routine examination of the cerebro-spinal fluid might settle the question once and for all. I agree with Dr. Bury that except in very rare cases the presence of syphilis can be demonstrated by modern methods, and that therefore the hope expressed above has been fulfilled. On a priori grounds, however, one variety of tabes might not be expected to give syphilitic reactions: and such cases are, I believe, found in practice. I refer to those cases in which the original lesion of an inflammatory nature has given place to a very chronic degenerative change without meningeal symptoms, and consequently without marked findings in the cerebro-spinal fluid. Dr. Bury's case does not appear to be of this type on account of the age of the patient (36 years) and the short duration of the disease. I should like also to quote a case of my own which was certainly not of the degenerative type of tabes and yet failed to give any of the modern tests for syphilis:—

J. K., aged 38 years, while in the army in November, 1916, had an accident which he thinks injured his spine. Since then he has complained of weakness of his legs and falling over objects in the dark. He was examined by neurologists, some of the highest repute, and they gave it as their opinion that the case was one of tabes. In July of this year the man was admitted to the David Lewis Northern Hospital, Liverpool, under my care. The following is a very brief description of his condition on examination:—Ataxia of the legs, with marked Rombergism; profound spinal myosis, with bilateral Argyll Robertson pupils; slight ptosis; fundi normal; girdle sensation and attacks of severe lightning pains in the legs; knee-jerks and Achilles jerks present; plantar reflex gave a flexor response; no muscular wasting; micturition normal; hyperæsthesia round

[1] The Times, Oct. 25th, 1920.

the trunk at the level of the umbilicus and in irregular patches on the legs. X ray examination of the spine revealed nothing abnormal. The serum gave a negative Wassermann reaction. The cerebro-spinal fluid showed only one cell per c.mm., no protein increase, a negative Wassermann in five dilutions, and a negative colloid gold reaction.

In short, there was no evidence of syphilis. There are two possibilities in this case: either the man has not got tabes at all, or he has tabes without syphilis.

I am, Sir, yours faithfully,

Liverpool, Oct. 27th, 1920. A. DOUGLAS BIGLAND.

MANCHESTER RADIUM INSTITUTE.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 30th, p. 924, it is stated under paragraph "Manchester Hospitals: Extensions and Additions" that the Royal Infirmary has acquired a large nursing home in Nelson-street for the use of the X ray department. This statement is erroneous. The nursing home in question, furnished and fully equipped, has been purchased by the Committee of the Manchester and District Radium Institute as the existing premises prove now to be insufficient for the rapidly expanding work of the Institute. Possession of the new premises will be obtained on Dec. 30th, and after certain structural alterations have been completed the work of the Institute will be transferred from the Royal Infirmary, where during the past six years it has been successfully conducted.

I am, Sir, yours faithfully,

WILLIAM MILLIGAN,
Hon. Secy. and Treasurer, Manchester and District
Manchester, Oct. 30th, 1920. Radium Institute,

*** Since this letter was written the Nelson House Nursing Home, in close proximity to the Royal Infirmary and the Eye Hospital, and fully equipped and ready for use, has been presented with great generosity to the Committee of the Radium Institute by Sir Edward and Lady Holt.—ED. L.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Dental Legislation.

Dr. ADDISON, Minister of Health, informed a deputation headed by Mr. RAFFAN, M.P., which waited on him on Oct. 27th, that he would introduce during the present session a Bill carrying out the recommendations of the Departmental Committee on the Dentists Act, 1878.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 27TH.

Sanatorium Benefit.

Mr. ORMSBY-GORE asked the Minister of Health whether in connexion with the discontinuance of sanatorium benefit at the end of the current calendar year, he would either provide for the compulsory transfer of members of staffs of insurance committees engaged on sanatorium benefit work to the new authority, or provide adequate compensation for all officers displaced by reason of the discontinuance of sanatorium benefit on the same lines as other public servants whose duties were abolished by statute.—Dr. ADDISON replied: The sanatorium benefit work of Insurance Committees is only a part of the work of those bodies and is, to a large extent, carried on by officers and servants of the committees who have other duties. I am sending my honourable friend an extract from a circular letter which was issued in June last to Insurance Committees in regard to staffing arrangements in connexion with the discontinuance of sanatorium benefit at the end of the year. I have not received representations from any quarter that there is need for provision being made on the lines indicated in the question.—Mr. ORMSBY-GORE: Is the right honourable gentleman not aware that as a result of that circular letter county council authorities have sent round letters to the officers hitherto engaged in the administration of sanatorium benefit saying that they can hold out no hope whatever of their being employed on other work, and is he aware that a number of clerks and others were employed in administering sanatorium benefit at the beginning of the Act and are now being thrown out of work altogether and given no other alternative at all?—Dr. ADDISON: I am afraid I am not acquainted with those facts at all, and if my honourable friend has anything to support them I shall be glad if he will communicate with me.

Poor-law Reorganisation.

Colonel BURN asked the Minister of Health if he would state when he expected to introduce his Bill for the reorganisation of the Poor-law; and would he allow ample time for full public discussion of this measure between its introduction and the second reading.—Dr. ADDISON replied: I cannot as yet fix a date for the introducton of the Bill. I will bear in mind the suggestion made by my honourable and gallant friend.

Maternity Welfare.

Mr. RAFFAN asked the Minister of Health if he was now in a position to state when a Bill to give effect to the Washington draft convention concerning the employment of women before and after childbirth would be introduced; and whether he was aware that action on these lines had already been taken by the respective governments of Belgium, France, Italy, Greece, Spain, South Africa, and Venezuela.—Dr. ADDISON replied: This question is at present engaging the attention of the Government, and I hope to be in a position to make an announcement shortly. I am not aware what action is being taken by foreign Governments in the matter.

Medical Referees and Disability Awards.

Mr. ORMSBY-GORE asked the Minister of Pensions whether his attention had been called to the hardship arising from the reduction by regional boards and directors of the percentage of disability after the actual payment of higher percentage rates authorised by local pension committees and the consequent repayments demanded from disabled ex-Service men; and whether he would issue an order that rates of payment authorised by local pensions committees should stand until reviewed by higher authority, and if reduced by the latter the reduced rate was only to become operative from the date of the higher authority's decision.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: The arrangements by which medical referees are, in certain limited classes of cases, allowed to assess disability provisionally in advance of medical examination by a full medical board was made in the interests of the men to meet exceptional cases of emergency, where hardship might have been caused if the man had had to wait for a board. The main function of medical referees is, however, not assessment for pension purposes, but the determination of the need of medical treatment, and it is fully understood by all concerned that any advance given provisionally by a local committee on a referee's finding is liable to adjustment on examination by a properly constituted board. My right honourable friend regrets therefore that he is unable to adopt the suggestion made in the latter part of the question.

THURSDAY, OCT. 28TH.

Pensions Appeal Tribunal.

Sir HARRY BRITTAIN asked the Minister of Pensions whether he could inform the House as to the percentage of applicants successful in gaining their cases put forward before the Ministry of Pensions Appeal Tribunal.—Mr. MACPHERSON replied: The number of appeals heard by Ministry of Pensions Appeal Tribunals prior to their dissolution on Oct. 31st, 1919, was 14,731, and of these 5064, or 31·2 per cent., were decided in favour of the appellants. On Nov. 1st, 1919, the Statutory Pensions Appeal Tribunals were established and from that date to Sept. 30th, 1920, 13,030 appeals have been heard by these tribunals, of which 4130, or 31·7 per cent., have been allowed.—Major MACKENZIE WOOD asked the Minister of Pensions if he would state how many cases were waiting to be heard by the Pensions Appeal Tribunal; at what rate these appeals were being disposed of; and how long, on the average, appellants had at present to wait before their cases come before the tribunal.—Mr. MACPHERSON replied: It has not been possible in the time available to obtain figures for all parts of the Kingdom. I am, however, informed from the Lord Chancellor's office that as regards England and Wales there are at the present time 2300 cases in the hands of the tribunals. Approximately 400 appeals are dealt with weekly by the tribunals, of which a certain percentage have to be adjourned owing to the non-appearance of the appellant or the fact that the tribunals require additional information. The average time which elapses between the date the appeal reaches the headquarters office of the Appeal Tribunal and the date of hearing is about a month.—Major WOOD: Will the right honourable gentleman consider the advisability of appointing a second tribunal for Scotland?—Mr. MACPHERSON: I am quite willing to consider that.

Medical Boards and Pension Assessments.

Mr. ALFRED T. DAVIES asked the Ministry of Pensions whether the assessment of pensions to ex-Service men during the first six months of the year compared with

the same assessments for the last six months of 1919, were tangibly reduced by the medical boards in the aggregate throughout England and Wales; and whether he would publish a return of these assessments for the period named; whether any confidential circular or circulars had been addressed by the Ministry, either to medical boards or any other officials under the direction of the Ministry, urging the desirability or need for cutting down pensions to ex-Service men; whether any circular, confidential or other, conveying that interpretation had been so issued during the past six months; and if so, would the Ministry consent to the publication of the same.—Mr. MACPHERSON replied: It has not been possible in the time available to calculate the results of the reassessments made in the several hundred thousand cases which have been dealt with in the course of the 12 months indicated in the question, but I may perhaps give my honourable friend the results of a somewhat similar investigation over a shorter period, which had already been undertaken by my instructions before he put down his question. Comparison was instituted in regard to the results of reassessments of pension over two periods of four months—namely, June, July, August, and September in 1920 and the same four months in 1919. The figures show that in the four months of last year 138,000 men were re-examined by medical boards with the result that in 43·4 per cent. of the cases the previous rate of pension was unchanged, in 13·1 per cent. of the cases the assessment was raised, and in 43·5 per cent. of the cases the assessment was reduced. During the same four months in 1920 210,000 men were re-examined with the result that in 43·8 per cent. of the cases the previous assessment of pension remained unchanged, in 7·4 per cent. of the cases the rate of pension was increased, and in 48·8 per cent. of the cases the assessment was reduced. The question raised by my honourable friend as to whether any instruction has been issued from the Ministry urging the desirability and need for cutting down pensions is one to which I am glad to have the opportunity of replying. I wish it to be clearly understood that no such instruction, confidential or otherwise, has been issued by my department, and none such will ever be issued with my knowledge or consent. Bearing in mind that the assessment for pension purposes depends on the estimate of the extent to which the man is disabled, as determined at intervals of 6 or even 12 months, by a medical board; that, in the course of nature, it is only to be expected, especially in cases of disease, which form 54 per cent. of the whole, that the men should to some extent recover their health; and that the Ministry are spending several million pounds a year in providing treatment for disabled men, to the number of 125,000 at any given time, I think the figures which I have quoted are sufficient in themselves to refute the unfortunate, if not mischievous, suggestion that there is any concerted attempt to reduce pensions arbitrarily.

Campaign against Typhus.

Mr. GALBRAITH asked the Prime Minister if he would state what was the substance of the report of the campaign against typhus which was presented by the Secretary-General of the League of Nations to the Council at the meeting just held at Brussels.—Mr. LLOYD GEORGE replied: The Council of the League of Nations is still sitting and has not yet reported. I am afraid, therefore, it is not possible for me to reply until I have received their report.

Expenditure on National Health Insurance.

Lieutenant-Colonel ASSHETON POWNALL asked the Chancellor of the Exchequer if he would state what is the total expenditure on National Health Insurance; what proportion of this total was spent on administration; and whether the expenditure on administration was commensurate with the benefits received.—Dr. ADDISON replied: I would refer the honourable Member to the return of July 23rd, 1920 (H.C. 160), in which the figures for the year 1919 are contained. In reply to the third part of the question I would point out that no reliable conclusions can be drawn from a comparison of the expenditure on administration with the amounts paid in benefits in view of the fact that the administration of National Health Insurance covers a much wider range of duties than the payment of benefits. I may, however, say that the amount which Approved Societies are allowed to spend on administration is limited by regulations, and having regard to the importance of securing an efficient service I have no reason to think that it is excessive.

Smoke Nuisance at the National Gallery.

Sir CLEMENT KINLOCH-COOKE asked the First Commissioner of Works whether he was aware of the frequent discharge of a dense volume of smoke from a chimney shaft from the engineering department, western branch, Orange-street, and of the opinion of the medical officer of health for Westminster to the effect that the nuisance caused thereby was a menace to the surrounding neighbourhood; and, in view of this opinion and the fact that the smoke could not be without a deleterious effect upon the pictures in the National Gallery and the National Portrait Gallery, the buildings of which were within some 30 yards of the chimney, he would take the same steps to abate the nuisance as was done with such excellent results by the Charing Cross Hospital, near by, by the installation of an apparatus which paid for its cost within a twelvemonth by lessening the coal consumption.—Sir A. MOND replied: Provision was made in the estimates for new hot water boilers, but unfortunately their delivery has been delayed, so that they cannot now be installed until the spring, when the heating of the National Gallery can be shut down. It is anticipated that these boilers, which will be substituted for the existing steam boilers, will do away with the nuisance complained of.

Proposed New South-Western University.

Viscountess ASTOR asked the President of the Board of Education whether he had considered the proposals made by local authorities in Plymouth and Exeter for the establishment of a South-Western University; and whether, as one of the steps towards the achievement of this object, he would give favourable reception to the proposed charter for a university college at Exeter.—Dr. FISHER replied: The answer to the first part of the question is in the affirmative. As regards the second part of the question, the Board of Education are considering, in consultation with the parties locally interested, proposals for developing the work of the Royal Albert Memorial College, but the recommendation of the grant of the charter is a matter for the Privy Council.

TUESDAY, NOV. 2ND.

Boards of Guardians and Pension Appeals.

Mr. CHARLES EDWARDS asked the Minister of Pensions whether he had received complaints from boards of guardians protesting against discharged soldiers having to apply for parish relief whilst waiting for the decision of the pensions appeal tribunal as to whether their disability was due to or aggravated by military service; and would he empower pensions committees to make grants pending such decisions.—Major TYRON replied: The answer to the first part of the question is in the affirmative. As regards the second part, I must refer my honourable friend to the reply given to the honourable Member for Pontypridd on July 29th last, of which I am sending him a copy.

The London University Site.

Sir WILLIAM DAVISON asked the President of the Board of Education whether the present Government or their predecessors had at any time incurred any legal or moral obligation to purchase the site at the rear of the British Museum from the Duke of Bedford; whether an agreement to purchase was ever actually entered into and subsequently rescinded on terms; whether this entanglement with the Duke of Bedford was the cause for the Government refusing any freedom of choice to the University with regard to a site and caused the restriction of the Government's offer to the site at the rear of the British Museum and no other; and whether the price at which the Duke of Bedford had agreed to accept could now be stated.—Mr. FISHER replied: The answer to the first three parts of the question is in the negative. The price which the Duke and his trustees have agreed to accept is £425,000.

Ministry of Pensions Appeal Tribunal.

Mr. PENNEFATHER asked the Minister of Pensions whether he was aware that nearly one applicant in every three who appealed to the Ministry of Pensions Tribunal was successful in his appeal; and if he would take such steps as might be necessary to avoid putting so many persons to the trouble of appealing.—Major TRYON replied: The proportion of appellants successfully appealing to the tribunal is approximately as stated, but it is necessary to bear in mind that the proportion of appeals to rejected claims is less than 15 per cent. Thus the successful appeals represent less than 5 per cent. of the adverse decisions given by the Ministry, and this fact may, I think, be regarded as a testimony to the care with which all claims are considered in the first place. No claim is rejected by the Ministry without the most careful consideration of all the relevant facts of the case; and my right honourable friend does not consider that any further steps in the direction suggested can reasonably be expected of him.

BOOKS, ETC., RECEIVED.

THACKER, SPINK, AND CO., Calcutta and Simla.
Diabetes in India. By Major D. McCay, I.M.S., and others. Reprints from the Indian Journal of Medical Research.

THIEME, G., Leipzig.
Diagnostik und Therapie der Magenkrankheiten. Von Prof. Dr. I. Boas. Pp. 671. M.138.50.

UNWIN, T. FISHER, London.
A Naturalist on Lake Victoria, with an Account of Sleeping Sickness and the Tsetse Fly. By G. Hale Carpenter, D.M. Oxon. Pp. 333. 28s.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on Oct. 28th, the President in the chair. The minutes of the Censors' Board having been read, the following were admitted as Members of the College:—Drs. W. T. Collier, A. Evans, G. S. Haynes, W. H. McKinstry, F. J. Nattrass, R. H. Norman, A. A. W. Petrie, O. L. Robinson, and G. S. Wilson. Licences to practise Physic were granted to 90 candidates who had conformed to the by-laws and regulations and passed the required examinations. Diplomas in Tropical Medicine and Hygiene were granted to 13 candidates, and diplomas in Ophthalmic Medicine and Surgery to 10 candidates, in each case jointly with the Royal College of Surgeons of England. The names of the successful candidates were published in our issue of last week.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Specimens recently added to the Museum will be on exhibition until Tuesday, Nov. 16th. The Thomas Vicary lecture will be delivered by Sir D'Arcy Power on Nov. 11th, at 5 P.M., on the Education of a Surgeon under Thomas Vicary. The Bradshaw lecture will be delivered by Sir Berkeley Moynihan on Monday, Dec. 6th, at 5 P.M. on the Surgery of the Diseases of the Spleen. Fellows and Members of the College are invited to attend both these lectures, which will be delivered in the theatre of the College in Lincoln's Inn Fields. Students and others will be admitted on presentation of their cards.

ENGLISHWOMAN EXHIBITION.—**The tenth exhibition** is to be held at the Central Hall, Westminster, London, S.W., from Nov. 10th to 20th. The exhibits will include hand-weaving, stained glass, jewellery, toys, etchings, pottery, enamelled glass, book-binding, and many other crafts.

THE HORSLEY MEMORIAL.—**The organising committee** met at 1, Wimpole-street, London, on Wednesday last, to determine the exact form which the proposed memorial to the late Sir Victor Horsley should take. Sir Charles Ballance occupied the chair, and the following executive committee was appointed to consider and report on the suggestions received:—

Mr. Donald Armour.	Dr. George Murray (Manchester).
Dr. Layland Barrett.	Mr. Stephen Paget.
Sir J. Rose Bradford.	Mr. J. J. Rae.
Mr. C. J. Bond.	Dr. Risien Russell.
Dr. Farquhar Buzzard.	Sir Leonard Rogers.
Dr. George Blacker.	Mr. Percy Rose.
Sir W. Watson Cheyne.	Mr. Percy Sargent.
Dr. Alfred Cox.	Dr. Squire Sprigge.
Dr. C. E. S. Flemming.	Dr. Lauriston Shaw.
Dr. E. W. Goodall.	Sir Felix Semon.
Sir Rickman Godlee.	Dr. Mary Sturge.
Mr. Raymond Johnson.	Sir Jenner Verrall.
Mr. Lief Jones.	Dr. Russell Wells.
Dr. J. A. Macdonald.	Mr. J. Smith Whitaker.
Sir J. Macalister.	Dr. Dawson Williams.
Dr. A. S. McNalty.	

The chairman and officers are ex-officio members of the committee.

PRESENTATIONS TO DOCTORS.—**Dr. B. A. Richmond**, till recently secretary to the London Panel Committee, and now one of the regional medical officers to the Ministry of Health, was on Oct. 26th presented with a silver tea service by past and present members of the London Panel Committee. A large number attended the presentation, which was made by Dr. H. J. Cardale, chairman of the London Panel Committee, supported by Dr. Lauriston E. Shaw, the treasurer. Dr. Richmond expressed his thanks and pleasure at receiving such a testimonial to his services as secretary, which extended over six years.—Dr. Bridget I. O'Connor, late assistant medical officer of health for Plymouth, who has recently taken up a public health appointment in London, has been presented with a gold bangle and a silver inkstand from the mothers attending the maternity and infant welfare centres in Plymouth, and with a gold pendant by the staff of the Plymouth Public Health Department in appreciation of her services.—Dr. F. H. Haynes, who recently completed 50 years of service as honorary physician and consulting physician at the Warneford Hospital, Leamington, has been presented with his portrait in oils. Sir Ernest Pollock, who made the presentation at the town hall, Leamington, in the presence of the mayor, referred in eulogistic terms to Dr. Haynes's long work for the hospital, remarking that the collection of portraits on the walls of the institution would be incomplete without that of Dr. Haynes. Mrs. Haynes received a replica of the portrait.

WEST LONDON POST-GRADUATE COLLEGE DINNER.—This dinner will be held on Nov. 13th at 7.15 for 7.45 P.M. at the Café Royal, Regent-street, London, W., Mr. H. J. Banks-Davis in the chair.

LONDON SCHOOL OF TROPICAL MEDICINE AND THE HOSPITAL FOR TROPICAL DISEASES.—The Duke of York will open the new premises at Endsleigh Gardens, London, N.W., on Thursday, Nov. 11th, at 2.30 P.M.

INFANTS HOSPITAL, VINCENT-SQUARE, WESTMINSTER.—A special post-graduate lecture will be delivered at this hospital by Dr. Ralph Vincent on Practical Points in Difficult Cases of Infant Feeding and Management, at 5 P.M., on Nov. 16th. Admission is limited to members of the medical profession.

ST. BARTHOLOMEW'S HOSPITAL.—**Since the inauguration** of the "Peace Year Commemoration Appeal" in aid of the hospital the total amount subscribed has been approximately £132,000. This sum, however, will enable the hospital to pay off the pre-war banker's debt and supply a balance to meet expenses to the end of the year only. Lord Sandhurst points out that the hospital's expenditure has risen from the pre-war average of £90,000 a year to over £160,000, with no adequate increase in assured income. The need of additional help, therefore, is greater than ever.

ABERDEEN UNIVERSITY CLUB, LONDON.—**The half-yearly dinner** of the club will take place on Thursday, Nov. 18th, at 7.30 P.M., at the Criterion Restaurant, Piccadilly, under the chairmanship of Sir Francis Ogilvie. Dr. W. A. Milligan, 11, Upper Brook-street, W. 1, will be glad to hear from any graduate desirous of being present or who may wish to join the club.

BELFAST UNIVERSITY SERVICES CLUB.—**The second annual dinner** of the club will take place on Nov. 11th (Armistice Day) at 6.30 P.M., at Thompson's, Donegall-place, Belfast. Old Queensmen, who have been on active service, and desire to be present, should write to the honorary secretary, Services Club, University of Belfast.

DANISH MEDICAL AID FOR POLAND.—**Dr. Thorvald** Madsen, director of the Danish State Serum Institute, has left for Warsaw, with an expert staff, at the invitation of the League of Nations, to combat the cholera and typhus prevalent in Poland. Denmark is also sending a fully equipped ambulance, together with four volunteer doctors and ten nurses, to Poland.

CONFERENCE ON THE CARE OF CRIPPLED AND INVALID CHILDREN.—A joint conference is to be held by the Invalid Children's Aid Association and the Central Committee for the Care of Cripples on Nov. 16th and 17th in the Council Chamber of the Guildhall, London. The Lord Mayor will open the conference and Mr. H. A. L. Fisher, President of the Board of Education, will give an address. At the morning session, which opens at 10.30 A.M. on Nov. 16th, Sir William Bennett will preside. The subject for discussion will be a Survey of Work for Physically Defective Children since the last Invalid Children's Aid Association Conference and the Bearing of Recent Legislation (Maternity and Child Welfare, Education, Children's and Insurance Acts) on the Work for Crippled and Invalid Children. The medical speakers will include Dr. E. W. Hope and Dr. John Robertson. At the afternoon session (2.30 P.M.) Sir Arthur Stanley will preside, and Coöperation with (*a*) Voluntary Agencies, (*b*) Public Health Committees, (*c*) Education Committees will be discussed. Dr. James Wheatley and Dr. D. C. Kirkhope will be among the speakers. On Nov. 17th, Sir Robert Jones will take the chair at the morning session, when a review of work among physically defective children in America and on the Continent, and an account of existing institutions, open-air P.D. day schools, hospital schools, and remedial clinics will be given, and the treatment of heart cases discussed with special reference to the Edgar Lee Home. Dr. H. S. Platt, Dr. F. C. Shrubsall, and Dr. F. Anderson Smith will speak at this session. The afternoon session will be presided over by Sir Napier Burnett, and the scheme of the Central Committee for Care of Cripples, and the Training and Supply of Orthopædic Nurses will be discussed. The medical speakers will include Sir Robert Jones and Mr. G. R. Girdlestone. Tickets of membership, admitting to all sessions of the conference (price 5s.), may be obtained from the honorary secretaries, Mrs. Munro, Invalid Children's Aid Association, Denison House, Vauxhall Bridge-road, London, S.W., or Mrs. Townsend, Central Committee for the Care of Cripples, 20, Berkeley-street, London, W. 1, together with all further particulars. Visits to various typical institutions such as Queen Mary's Hospital, Carshalton, St. Vincent's Home, Pinner, and to L.C.C. Open-air and Physically Defective Schools are being arranged for Nov. 15th and 18th.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.—A public lecture on the Aims of Ethnology will be delivered by Dr. W. H. R. Rivers on Wednesday, Nov. 10th, at 5.30 P.M., Professor G. Elliot Smith in the chair.

THE eleventh biennial Huxley lecture on Recent Advances in Science in their Relation to Practical Medicine will be delivered by Professor Gowland Hopkins, of Cambridge, in the out-patients hall of the Charing Cross Hospital on Wednesday, Nov. 24th, at 3 P.M.

Dr. Henry Salomon, of Leicester, has been awarded the Government grant for successful vaccination in his district.

WESTON-SUPER-MARE (SOMERSET) HOSPITAL.—A new ward, endowed by the family of the late Mrs. W. H. James, has been recently added to this hospital.

HOSPITAL FOR TUBERCULOSIS IN GLOUCESTERSHIRE.—Considerable progress is being made by the Gloucestershire County Council in adapting Standish House, near Cheltenham, as a hospital for tuberculosis. The capital cost will be about £74,000, and will be provided jointly by the Ministry of Health, the Red Cross Society, the Gloucestershire County Council, and the city of Gloucester.

SOCIETÀ ITALIANA DI MEDICINA INTERNA.—**The** Twenty-sixth Congress of the Italian Society of Internal Medicine is to be held at Rome, in the Reale Istituto di Clinica Medica (Policlinico Umberto I.), from Nov. 9th to 12th, 1920. The principal subjects dealt with will be bronchial asthma, lymphadenoma, and clinical electrocardiography. Special arrangements have been made with the Italian State railway authorities enabling representatives and others attending the Congress to travel to and from Rome at largely reduced fares. Further information may be obtained from the secretary of the Congress, Professor G. Sabatini, at the above address.

PANEL LIMIT IN MANCHESTER.—**A recent Order** limits the number of panel patients a doctor can have under the Insurance Acts to 3000, but local authorities may fix a lower figure. At the beginning Manchester adopted a lower limit or the equivalent of one. The Manchester Insurance Committee came to an arrangement with the medical men whereby each practitioner on the panel may have the equivalent in money of 2750 patients, a number which cannot be exceeded except when he has an assistant, and then the maximum must not exceed 4750. Every patient has a free choice of the doctors on the panel, and is not tied down to one particular practitioner, provided always the practitioner's panel is not already complete. The panel doctor is paid on an attendance basis and he must render service for his fees either by home visits or at his surgery—the attendance being duly recorded and checked each quarter by the Insurance Committee. There are at the present time 340,000 names on the panel in Manchester.

DURALUMIN ARTIFICIAL LIMBS.—**On Oct. 20th, an** exhibition and demonstration of the Perfected Duralumin Artificial Limbs, as supplied by the Dureall Limb Company to the Ministry of Pensions, was held at Anderton's Hotel, Fleet-street, London. Major Gilman gave a brief account of the difficulty encountered in producing limbs of wood, and pointed out the advantages of duralumin. A wearer of one of the limbs demonstrated its use and walked well. Experimental work with various materials has long been in progress, as the demand for lighter designs in artificial limbs has become insistent; duralumin, a metal invented and manufactured by Messrs. Vickers, meets this demand in point of weight, strength, simplicity, and durability. Aluminium has been found impracticable, as it is rapidly corroded by perspiration. Duralumin limbs of the Desoutter type are supplied at low cost by the Dureall Limb Company. These are jointed with high-grade steel, and knee-joints are encased in gun metal or bronze perforated bushing, readily admitting of lubrication. Various attachments make the limbs adaptable for work, play, riding, and driving a car. For above-knee amputations the artificial limbs can be arranged to stop at any required position of flexion. A light belt, with the addition of a strand of webbing over one shoulder in some instances, constitutes the entire necessary harness. Ankle-joints are recommended except where special steadiness is required and gait is of secondary importance; after extensive experiments the material found most suitable for feet is seasoned willow, with steel ankle-joints bushed in sole-leather. A foot is now in process of construction on an entirely new principle which dispenses with the ankle-joint and admits a natural movement. A light form of tilting table, for cases of amputation through the hip, is also supplied. A considerable number of duralumin limbs manufactured both for Government and for private individuals are in daily use. The address of the Dureall Company is 154, Pentonville-road, London, N.1.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Nov. 11th.—Papers: Dr. W. G. Ridewood: On the Calcification of the Vertebral Centra in Sharks and Rays (communicated by Prof. E. W. MacBride).—Dr. A. Compton: Studies in the Mechanism of Enzyme Action. I., Rôle of the Reaction of the Medium in fixing the Optimum Temperature of a Ferment (communicated by Prof. B. Moore).—Mr. C. H. Kellaway: The Effect of Certain Dietary Deficiencies on the Suprarenal Glands (communicated by Mr. W. B. Hardy, secretary of the Royal Society).—Mr. E. J. Collins: The Genetics of Sex in Funaria Hygrometrica (communicated by Mr. W. Bateson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.
Monday, Nov. 8th.
WAR SECTION: at 5.30 P.M.
Paper:
Major Angus Macdonald: Some Problems in Malaria.
A discussion will follow.
Tuesday, Nov. 9th.
SECTION OF PSYCHIATRY: at 8.30 P.M.
Presidential Address:
Dr. E. Farquhar Buzzard: Some Aspects of Mental Hygiene.
Wednesday, Nov. 10th.
SECTION OF SURGERY: SUBSECTION OF PROCTOLOGY; at 5.30 P.M.
Presidential Address by Mr. Ernest Miles.
Communication:
Mr. Lockhart-Mummery: The Operative Treatment of the Prolapse of the Rectum in Adults.
Cases:
Sir Charles Gordon-Watson: (1) Laparotomy for Ovarian Cyst Eight Years after Abdomino-perineal Excision of the Rectum; (2) Case of Perineal Excision of the Rectum 18 Months after Operation.
Mr. Lockhart-Mummery:
A *Specimen* will be shown by Mr. Cecil Rowntree.
Thursday, Nov. 11th.
SECTION OF NEUROLOGY: at 8.30 P.M.
Discussion:
On "Aphasia," introduced by Dr. Henry Head and Dr. James Collier.
Friday, Nov. 12th.
CLINICAL SECTION: at 5.30 P.M. (Cases at 5 P.M.)
Papers:
Dr. F. Parkes Weber: Chronic Myeloid Leukæmia—Death from Acute Anæmia due to Massive Hæmorrhages (Hæmatomata), Simulation of Slight Pyuria by Leukæmia Oozing in the Urine.
Mr. Z. Cope: Diaphragmatic Shoulder Pain.
Cases:
Mr. L. H. McGavin: Diffuse Hypertrophy of Breasts.
Dr. H. W. Barber: Leukæmia.
Mr. Ogilvie: (1) Œsophageal Obstruction; (2) Large Gluteal Bursæ.
Mr. R. Kerr: Von Recklinghausen's Disease.
Mr. R. P. Rowlands: Diaphragmatic Hernia.
Dr. Ryle: Leukæmia.
And other cases.
SECTION OF OPHTHALMOLOGY: at 8.30 P.M.
Cases may be shown at 8 P.M.
Exhibit:
Mr. N. Bishop Harman: A Direct Record Scotometer.
Presidential Address:
Dr. James Taylor: Some Neurological Aspects of Ophthalmic Cases.
Communication:
Mr. Priestley Smith: On the Blood-vessels in the Eye of the Ox (with lantern slides and microscopical exhibits).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Nov. 8th.—8 P.M., Clinical Evening. Cases will be exhibited by the following—Dr. H. French, Dr. Parkes Weber, Dr. G. E. S. Ward, Dr. Feiling, Dr. Gosse, Mr. C. W. G. Bryan, Mr. C. A. Pannett, Dr. Lakin, Dr. E. Kingscote, Dr. F. J. Poynton, Mr. T. P. Legg, and Mr. H. Lett.

HUNTERIAN SOCIETY, at Zion College, Embankment, E.C.
WEDNESDAY, Nov. 10th.—9 P.M., Informal Discussion on Hidden Sepsis (opened by Dr. A. W. Robertson).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
THURSDAY, Nov. 11th.—5 P.M., Thomas Vicary Lecture:—Sir D'Arcy Power: The Education of a Surgeon under Thomas Vicary.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Nov. 8th.—2 P.M., Mr. B. Harman: Eye Department. 5 P.M., Lecture:—Mr. MacDonald: Tubercle of the Urinary Organs.
TUESDAY.—10 A.M., Dr. McDougal: Electrical Department. 5 P.M., Lecture:—Dr. Burnford: Post-mortem Appearances in Tuberculosis.
WEDNESDAY.—2 P.M., Mr. Gibb: Eye Department. 5 P.M., Lecture:—Dr. A. Saunders: The Prevention of Cardiac Disease in Rheumatism.

THURSDAY.—2 P.M., Mr. D. Armour: Operations. 5 P.M., Special Lecture:—Dr. E. W. G. Masterman: The Tropical Diseases of Palestine.

FRIDAY.—2 P.M., Mr. T. Gray: Surgical Out-patients. 5 P.M., Lecture:—Mr. Baldwin: Tuberculous Disease of the Intestines and Some Conditions Mistaken for Rheumatism and Allied Disorders. (Lecture IV.)

SATURDAY.—12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.

Daily:—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Nov. 8th.—2 P.M., Dr. A. J. Whiting: Medical In-patients. 2.30 P.M., Mr. J. B. Banister: Gynæcological. 4.30 P.M., Value of Clinical Pathology in Gynæcology.

TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot and Mr. N. Fleming: Eye Cases and Operations. 2.30 P.M., Mr. C. H. Hayton: Throat, Nose, and Ear. 3 P.M., Mr. J. Howell Evans: Selected Surgical Cases.

WEDNESDAY.—2 P.M., Mr. C. H. Hayton: Throat Operations. 3 P.M., Dr. W. J. Oliver: Selected Skin Cases.

THURSDAY.—2 P.M., Mr. N. Fleming: Eye Out-patients. 3 P.M., Dr. C. F. Hadfield: The Administration of Anæsthetics.

FRIDAY.—3 P.M., Dr. C. E. Sundell: Selected Cases of Children's Disease. 5 P.M., Dr. F. L. Provis: Venereal Department.

SATURDAY.—3 P.M., Mr. H. W. Carson: Surgical In-patients.

Daily:—11 A.M., Mr. T. H. C. Benians: Bacteriological Department. 2 P.M., Operations, In-patient, Out-patient Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.1.
MEDICAL SCHOOL.

MONDAY, Nov. 8th.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Mr. Paton: Papilloedema.

TUESDAY, Nov. 9th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Lecture:—Dr. Risien Russell: Hysteria.

WEDNESDAY, Nov. 10th.—2 P.M., Lecture: Dr. Tooth: Poliomyelitis. 3.15 P.M., Lecture:—Dr. Collier: Birth Palsy.

THURSDAY, Nov. 11th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Farquhar Buzzard: Brachial Neuralgia.

FRIDAY, Nov. 12th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Sargent: Surgery of the Nervous System.

SATURDAY, Nov. 13th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Nov. 11th.—4 P.M., Lecture:—Mr. Waugh: The Child as a Subject for Surgical Treatment.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.

MONDAY, Nov. 8th.—5.30 P.M., Post-Graduate Lecture:—Dr. S. Goodall: Sudden Death in Relation to Heart Disease.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Nov. 11th.—6 P.M., Chesterfield Lecture:—Dr. W. K. Sibley: Electrical Treatments. X Rays, &c.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.

Post-Graduate Course on Infant and Child Welfare.

TUESDAY, Nov. 9th.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—Demonstration XI., The Treatment of the Heat Regulating Functions.

THURSDAY.—3 P.M., Demonstration XII., The Feeding of Children between 9 Months and 2 Years.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Nov. 9th.—4.30 P.M., Lecture:—Dr. W. E. Fothergill: The Use and Misuse of the Curette.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).

THURSDAY, Nov. 11th.—4.15 P.M., Dr. A. C. Magian: Surgical Treatment of Some Common Gynæcological Complaints.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, Nov. 11th.—4.30 P.M., Dr. Ashby: Feeding of Infants. (At Salford Royal Hospital.)

Appointments.

DODD, H. G., M.B., B.S. Durh., has been appointed Honorary Anæsthetist to the Hove Carr-Burton Hospital.

FELDMAN, W. M., M.B. Lond., Lecturer on Ante-natal and Post-natal Child Physiology at the London Hospital.

GREEN, S. W., M.R.C.S., L.R.C.P. Lond., Medical Officer to the Doncaster Board of Guardians.

ROPER, F. A., M.A., M.D., B.C. Cantab., L.R.C.P., M.R.C.S., Senior Medical Officer in Charge of the Electrical Department of the Royal Devon and Exeter Hospital.

SHELDON, J. H., M.D., B.S. Lond., Honorary Physician to Wolverhampton General Hospital.

King's College Hospital: JOHNS, L. P., M.R.C.S., L.R.C.P. Lond., WHITTLE, C. H., M.R.C.S., L.R.C.P. Lond., and SURRAGH, H. J. R., M.R.C.S., L.R.C.P. Lond., Casualty Officers; RICHARDS, H. A., M.R.C.S., L.R.C.P. Lond., House Anæsthetist; WOOD, W. S., L.S.A., FOULKES, R. K., M.R.C.S., L.R.C.P. Lond., and PLAYFAIR, K., M.R.C.S., L.R.C.P. Lond., House Physicians; MATTHEWS, W. F., M.R.C.S., L.R.C.P. Lond., House Physician for Children and Eye Department; ROBERTS, O. W., DAVIDSON, A. N. M., M.R.C.S., L.R.C.P. Lond., POWELL, R. V., M.R.C.S., L.R.C.P. Lond., LUCAS, H. A., M.R.C.S., L.R.C.P. Lond., and LAWRENCE, R. D., M.B., B.Ch., House Surgeons; FREEMAN, Miss A. M., Assistant House Anæsthetist; and YOLLAND, R. H., L.S.A., Obstetric House Surgeon.

University of Manchester: DONALD, A., M.D., F.R.C.P. Lond., Professor of Clinical Obstetrics and Gynæcology; FOTHERGILL, W. E., M.D. Edin., Professor of Systematic Obstetrics and Gynæcology; RAMSBOTTOM, E. N., M.D., Assistant Lecturer in Practical Bacteriology and Microscopy.

Certifying Surgeons under the Factory and Workshop Acts: SMITH, H. J., M.B., B.S. Lond. (Heckington); WINDLE, J. D., M.D. Vict. Univ. (Southall).

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—Asst. H.S. £150.

Belgrave Hospital for Children, 1, Clapham-road, S.W.—Asst. P. 50 guineas.

Bethlem.—Res. H.P. £25 per quarter.

Birmingham City Maternity and Child Welfare Schemes.—Female Asst. M.O.H. £800.

Birmingham, Salterley Grange Sanatorium, near Cheltenham.—Medical Superintendent. £700.

Birmingham, Yardley-road Sanatorium and Anti-tuberculosis Centre.—Asst. M.O. £550.

Bristol General Hospital.—Medical Registrar.

Bristol Royal Infirmary.—Hon. Asst. P.

Cambridge, Addenbrooke's Hospital.—H.S. £130.

Canterbury, Kent and Canterbury Hospital.—Jun. Res. M.O. £150.

Clinical Research Association, Ltd., Watergate House, York Buildings, Adelphi, W.C.—Asst. Directors of Laboratories. £500 and £250 respectively.

Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.

Denbighshire Education Authority.—Two Asst. M.O.H.'s. £500 to £600.

Durham University College of Medicine, Newcastle-upon-Tyne.—Assistant in Department of Bacteriology. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Path. and Registrar. £400.

Eday, Orkney.—M.O. £10 a week.

Federated Malay States Colonial Service.—Pathologist to Medical Research Institute. £1050.

Finsbury Dispensary, Brewer-street, Goswell-road, E.C.—Res. M.O. £250.

Gateshead County Borough Mental Hospital, Stannington, Northumberland.—Asst. M.O. £350.

Great Northern Central Hospital, Holloway-road, London, N.—H.S. £150.

Guildford, Royal Surrey County Hospital.—Third H.S. £150.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Res. M.O. £500. Dent. S. 100 gs. Anæsth. 75 gs.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Anæsth. £50.

Hull Royal Infirmary.—Asst. V.D. and Cas. O. £250. Also Asst. H.S. £150.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £200. H.P. £200.

Kent Education Committee.—Sch. Med. Inspec. £562.

Leeds City Tuberculosis Sanatorium.—Res. Asst. M.O. £300.

Leeds City.—Asst. M.O.H. for Maternity and Child Welfare. £600.

Leicestershire County Council.—Female Asst. Sch. M.O. and Asst. Infant Welfare M.O. £500.

Liverpool, Royal Southern Hospital.—Hon. M.O. for X Ray Dept.

London County Mental Hospital Service.—Sixth and Seventh Asst. M.O.'s. £300.

Maidstone, Kent County Mental Hospital.—Jun. Asst. M.O. £300.

Manchester, Baguley Sanatorium for Tuberculosis.—First Asst. M.O. £400.

Manchester, Hulme Dispensary, Dale-street, Stretford-road.—Res. M.O. £400.

Merthyr Tydfil Co. Borough.—Asst. Sch. M.O. and Asst. M.O.H. £500.

Middlesbrough, North Ormesby Hospital.—Hon. Ophth. S., S., Anæsth., and Asst. S.

Middlesex County Council.—Dental S.'s. £400.

Miller General Hospital for South-East London, Greenwich, S.E.—H.P. £150.

Mount Vernon Hospital for Tuberculosis and Diseases of the Lungs and Heart, Northwood, Middlesex.—Asst. P.

Newport, Mon., Education Committee.—Female Asst. Sch. M.O. and Med. Inspector of Schools. £600.

Newport, Mon., Royal Gwent Hospital.—Third Res. M.O. £200.

Norwich, Norfolk and Norwich Hospital.—Fourth H.S. £200.

Nottingham General Dispensary.—Res. S. £300.

Oldham Royal Infirmary.—Sec. H.S. £250.

Plymouth Borough.—Asst. M.O.H. £500.

Putney Hospital, Lower Common, Putney, S.W.—Res. M.O. £150.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.P. £100. Also M.O. for Electrical Dept. £100.

Rotherham Hospital.—Jun. H.S. £150.

Royal Chest Hospital Tuberculosis Dispensary, City-road, E.C.—Asst. M.O. £450.

Salford Royal Hospital.—Cas. H.S. £150.

Sanitary Inspectors' Examination Board.—Examiners.

Shanghai Municipal Council.—Asst. Health O. 6000 taels.

Sheffield Royal Infirmary.—H.S. £150.

Southampton Parish Infirm., Shirley Warren.—Res. Asst. M.O. £300.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. P. and Ophth. S. Also Radiographer. £60. Asst. Path. £150. Anæsth. 10s. 6d. per attendance.

Todmorden Borough.—M.O.H. and Sch. M.O. £650.

Warminster Union.—District M.O. £100. M.O. £60. Public Vaccinator.

West Bromwich and District Hospital.—Res. Asst. H.S. £200.

West London Hospital, Hammersmith, W.—Asst. Anæsth.

Wigan County Borough.—Tuberc. O. and Asst. M.O.H. £550.

Winwick, Lancashire County Asylum, near Warrington.—Second Asst. M.O. £300.

York Dispensary.—Res. M.O. £250.

Births, Marriages, and Deaths.

BIRTHS.

ANDERSON.—On Oct. 25th, at Corstorphan's Hotel, Simla, India, the wife of Captain (Temporary Major) L. A. P. Anderson, Indian Medical Service, of a daughter (Daphne).

CAVENDISH FULLER.—On the 29th Oct. at Oakdale, Malvern, to the wife of Dr. H. Cavendish Fuller—a daughter.

FARQUHARSON.—On Oct. 9th, to Loveday S. Farquharson, M.B., B.S., and Donald Farquharson, M.R.C.S., L.R.C.P.—a daughter.

TROUNCE.—On Oct. 22nd, at Hillview, Chesbunt, Herts, the wife of T. Reginald Trounce, M.R.C.S., L.R.C.P., of a son.

WHITTINGTON.—On Oct. 25th, at "Oakfield," Carshalton-road, Sutton, the wife of T. H. Whittington, M.D., of a daughter.

WOOD.—On Oct. 27th, at "Marston Ferry Corner," Oxford, the wife of John Wood, M.B., M.R.C.S., L.R.C.P., &c., of a son.

MARRIAGES.

MCCLINTOCK—HUMPHREYS.—On Oct. 28th, at Meifod Parish Church, Captain S. Alexander McClintock, R.A.M.C., of Castlequarter, Co. Donegal, to Gwendolen Mary, only daughter of Lieutenant-Colonel C. E. Humphreys, Medical Officer of Health for Montgomeryshire.

THURSTON—GROSE.—On Oct. 30th, at St. Augustine's, Honor Oak, Vernon John Thurston, L.D.S. R.C.S. Eng., to Doris Ada Grose, L.D.S. R.C.S. Eng., younger daughter of Mr. and Mrs. F. Oswald Grose, of Forest Hill.

DEATHS.

BONNERJEE.—On Sept. 25th, at Lahore, Susila Anita Bonnerjee, M.B. Lond., Newnham College, Cambridge, and Royal Free Hospital, London.

EVANS.—On Oct. 26th, at "Outspan," Worthing, the residence of his son, Frederick William Evans, M.D., J.P., late of Cardiff, aged 69.

MORGAN.—On Oct. 30th, at his residence, Gloucester-place, W., Cecil Augustus Morgan, M.B., C.M. Edin., aged 56.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—*Anglo-French Review*, Lond.; Australian Medical Congress, Brisbane, Hon. Gen. Sec. of; *Aeroplane*, Lond., Editor of.

B.—British Colloids, Lond., Sec. of; Dr. G. Blacker, Lond.; Dr. D. W. Buxton, Boxmoor; Prof. A. E. Boycott, Lond.; Dr. E. F. Buzzard, Lond.; Lt.-Col. Sir J. Barrett, Melbourne; Dr. V. Borland, Lond.; Dr. J. M. Bruce, Lond.; Dr. S. N. Bruce, Lond.; Dr. A. D. Bigland, Liverpool; Mr. F. W. Broderick, Bournemouth; Mr. H. W. Bayly, Lond.

C.—Sir F. Colyer, Lond.; Mr. E. M. Corner, Lond.; Dr F. G. Crookshank, Lond.; Central Council for Infant and Child Welfare, Lond., Hon. Sec. of; Dr. W. Cramer, Lond.; Dr. A. K. Chalmers, Glasgow; Prof. E. L. Collis, Cardiff; Dr. E. P. Cumberbatch, Lond.; Col. S. L. Cummins, A.M.S., Lond.; Central London Throat, Nose and Ear Hospital; Dr. R. P. Cockburn, Ealing; Carlton Studio, Lond.; Chadwick Trust, Lond.

D.—Deutsche Gesellschaft für Schädlingsbekämpfung, Frankfurt-a-M.; Dr. G. H. Dundas, Middlesbrough; Mr. E. J. Domville, Bridport.

E.—Mr. T. Edgar, Lond.

F.—Dr. W. M. Feldman, Lond.; Federation of Medical and Allied Societies, Lond., Gen. Sec. of; Mr. R. C. Frederick, Lond.; Dr. R. J. Farman, Lond.; Dr. C. S. Flemming, Bradford-on-Avon.

G.—Great Northern Central Hospital, Lond.; General Medical Council, Lond., Registrar of.

H.—Dr. R. Hall, Belfast; Messrs. C. J. Head and Co., Chicago; Dr. C. T. W. Hirsch, Lond.

I.—India Office, Lond., Joint Secretary, Military Dept.; Industrial Welfare Society, Lond.; Insurance Committee for the County of London.

J.—Dr. M. S. Jevons, Lond.; Joint Board of Scientific Societies, Lond.

K.—King's College Hospital Medical School, Lond., Sec. of; Dr. J. S. Kennard, New York; Dr. A. F. S. Kent, Manchester.

L.—Mr. E. M. Little, Lond.; Dr. C. Lillingston, Gorleston; Dr. E. P. Leavy, Innisfail, Queensland; Liverpool Medical Institution; Dr. W. R. Logan, Edinburgh; Dr. C. E. Lakin, Lond.

M.—Dr. R. Morton, Lond.; Mr. G. Mayall, Bolton; Metropolitan Public Gardens Association, Lond.; Dr. R. S. McClelland, Dowlais; Ministry of Health, Lond.; Dr. S. G. Moore, Huddersfield; Dr. H. A. Macewen, Lond.; Sir W. Milligan, Manchester; Dr. E. W. G. Masterman, Lond.; Dr. W. A. Milligan, Lond.; Dr. A. E. Maylard, Glasgow; Ministry of Agriculture and Fisheries, Lond.; Mr. H. T. Morse, Lond.

P.—Dr. V. Pauchet, Paris; Mr. E. A. Partrick, Coventry; Miss U. Pardon, Lond.

R.—Royal Society, Lond.; Dr. J. D. Rolleston, Lond.; Dr. J. A. Ryle, Lond.; Miss M. S. Rundle, Lond.; Royal College of Surgeons of England.

S.—Dr. F. J. Sadler, Barnsley; Societa Italiana di Medicina Interna, Rome, President of; Messrs. G. Street and Co., Lond.; Scientific and Industrial Research Dept., Lond.; Dr. H. Salomon, Leicester; Mr. S. W. Swindell, Grimsby; Prof. W. Stirling, Manchester; Save the Children Fund, Lond.; Sir A. Stanley, Lond.

T.—Dr. H. M. Turnbull, Lond.; Dr. W. D. T. Thompson, Wembley; Dr. A. H. Thompson, Lond.; Dr. W. W. C. Topley, Lond.; Dr. J. Taylor, Lond.

U.—United States Shipping Board, Lond.

V.—Mr. H. C. Visick, Lond.

W.—Mr. R. O. Ward, Lond.; West London Hospital Post-Graduate College, Dean of; Dr. F. J. Waldo, Lond.; Dr. C. M. Wenyon, Lond.; Dr. C. Wall, Lond.

Y.—Dr. H. Yellowlees, Edinburgh.

Z.—Dr. T. Zangger, Zurich.

Notes, Short Comments, and Answers to Correspondents.

THE CARRYING OF FIREARMS: PRECAUTIONS AND SAFEGUARDS.

ON Nov. 1st an Act to be known as the Firearms Act came into operation, the original date for it to do so having been postponed owing to the necessary rules and other preparations for administering it not having been completed. It constitutes an attempt to regulate much more stringently than was done by the Pistols Act, 1903, the sale and possession (including loan and any temporary transfer) of firearms as defined in the Act. The Pistols Act is repealed by it, and the word pistol is not mentioned, but the new law includes under firearms any lethal firearm or other weapon of any description from which any missile can be discharged, or any part thereof, with the exception of a smooth-bore shot-gun, or an air-gun or air-rifle not forbidden by regulation under the Act as specially dangerous. The sale of ammunition is also brought under supervision by the Act, and the term is not only made to include ammunition for the firearms defined above, but also grenades, bombs, and similar missiles, whether capable of being used with a firearm or not, and the ingredients and components thereof. The Act also prohibits the manufacture, carrying, or dealing in any weapon for the discharge of a noxious liquid or gas, or any ammunition to be used with any such prohibited weapon.

Obligations on the User of Firearms.

The provisions with regard to firearms and ammunition affecting the use of pistols amount to this, that no one may purchase, have in his possession, use, or purchase them unless he holds a "firearm certificate," to be granted by the chief officer of police in the district in which he resides, and the police officer may only grant a certificate if he is satisfied that the applicant has a good reason for requiring one, and can be permitted to own a firearm and ammunition without danger to the public safety or the peace. The granting of a firearm certificate is expressly prohibited to certain persons specified in the Act who are prohibited from possessing, using, or carrying a firearm, including persons under 14 years of age, and persons who have undergone penal servitude or imprisonment for three months. The same express prohibition forbids the issue of a certificate to a person of intemperate habits, or unsound mind, or for any reason unfit to be trusted with firearms. The necessary exemptions and exceptions are made, but need not be gone into. A certificate when granted is to be good for three years, but is subject to revocation under conditions rendering this desirable.

Obligations on the Seller of Firearms.

Further, no one may deal in or repair or test firearms by way of trade unless he is registered as a "firearms dealer" by the chief officer of police of his district. A pawnbroker may not take in pawn a firearm or ammunition from any person. No person may sell a firearm or ammunition to, or repair a firearm for, any person who does not produce a firearm certificate (except to a registered dealer), and every dealer is to keep a register of his transactions and to satisfy himself of the identity of his customer. Severe penalties are provided for breaches of the provisions described above and for being in possession of firearms or ammunition with intent to endanger life, the Act incorporating in the latter case the provisions of Section 3 of the Explosive Substances Act, 1883, under which a sentence of 20 years' penal servitude may be passed on a person convicted. The production of a certificate by a person suspected of carrying a firearm may be demanded by any constable, and a magistrate if satisfied by information on oath that there is reason to suspect an offence under the Act may grant a search warrant authorising the searching of suspected premises and of persons found there, the latter being liable to arrest without warrant if there is reason to suspect them of an offence against the Act.

Effect of the New Safeguards.

It will be seen that the authorities have had their hands strengthened by a very comprehensive measure, which, by the way, does not exempt anyone from the necessity for having a gun licence or game licence. The danger to life and the risk of injury to innocent citizens from the indiscriminate carrying of revolvers has been commented upon for many years in THE LANCET. The Pistols Act, 1903, was a tentative and not very effective measure designed to mitigate the evil and to diminish the sale of cheap pistols sold almost as toys. The present Act is an experiment

also, and will no doubt be improved upon after defects have been realised, but with the coöperation of those carrying on the gun trade, which is believed to be assured, should have considerable effect at a time when it is much needed. Thousands of pistols have been brought home as war souvenirs apparently without inquiry. These and weapons belonging to criminals are not likely to be all brought to light immediately through the powers given to the police, but the use, if not the possession, of pistols by persons without certificates should be seriously curtailed by the difficulty which they will experience in obtaining ammunition and in getting repairs effected.

Readers of THE LANCET who may use "firearms," or possess them, lawfully are recommended to read the Act and Regulations (price 3*d*. and 2*d*. respectively) and to note their provisions affecting themselves. Antique firearms kept as curios do not require a certificate in respect of them, but there is a special subsection dealing with trophies of what is referred to as the present war or of any former war, as to which a dispensation may be granted by the police. Owners of rifles of any kind will have to comply with the Act, and attention is called to the conditions which should attend the lending and borrowing of such weapons. There are special provisions in the Act respecting Ireland.

INTERNATIONAL HEALTH.

THE LEAGUE OF NATIONS AND THE HEALTH OF THE PEOPLE.

IN his second Chadwick lecture (the first was reported in THE LANCET of Oct. 23rd, p. 877) Professor F. F. Roget further explained the views set forth at the Cannes Conference for the turning of the activities of the Red Cross societies from the path of military emergencies into peace channels. Passing on to tuberculosis, the second of the social diseases, he had something to say about the two modes of attacking this disease. The preventive mode of giving to human beings an environment and a nutrition, as free from germs as possible, should not be applied irrespective of the segregation of tuberculous persons and keeping them apart from the healthy for any necessary length of time. On the subject of malaria the lecturer pointed out by what scientific means, the application of which raised no question except that of money and administrative efficiency, it was now possible to restore to salubrity whole tracts of country hitherto a prey to the disease.

Public Health Work.

In his third lecture delivered on Oct. 29th, Professor Roget dealt with the work mapped out for the Public Health Department of the League of Red Cross Societies. This work is divided into seven sections dealing respectively with social diseases, including venereal diseases more particularly; the prevention of malaria; tuberculosis; preventive medicine; child welfare; nursing; and education, comprising publications, propaganda work, and statistics. Professor Roget pointed out the difficulties attending this inclusion of venereal diseases in Red Cross work, such diseases being more suitable for the ministrations of the medical officer and the private physician.

Child Welfare and Nursing.

Dealing with the resolutions of the Medical Advisory Board of the League as affecting child welfare and nursing, the lecturer said that the General Council of the League of Red Cross Societies met in Geneva in March of this year for a week, 27 societies being represented. The medical resolutions passed by this Council came before the Medical Advisory Board, which met for the first time in July. As defined by this Board, child welfare included all measures to be adopted for children before and after birth, the hygiene of the mother and the child, the supervision of growth, and protection from communicable diseases, especially tuberculosis. Analogous to the cry "Back to the land," the cry "Back to the child" implied the scattering far and wide of the child-welfare scheme, which must be based on the sympathetic support of doctors and on the education of the public. It lay with the Red Cross Societies to provide doctors to produce the largest possible number of modern nurses duly trained, and to create schools or centres for instruction. All this should tend to one end, the education of the public. Of great importance was the formation of a child-welfare unit, consisting of an instructed group of workers with proper equipment, which would be sent to places where child-welfare work was most deficient. It was hoped that such a unit would form a nucleus from which a knowledge of the science of child welfare would spread in every country throughout the world. This store of good health in the community should be specially concentrated in the children and should be looked upon as capital deposited in a bank waiting to be drawn upon for business purposes. There was no way in which a woman could better serve the community than by nursing. The work of the Red Cross in civil communities involved the utilisation of women health-workers in the organisation of society. No work of social relief could be better suited for Red Cross organisation in time of peace than child-welfare work. The mission of these women, as sketched out by the Cannes Conference, was one of some delicacy, because to enter the homes of people in order to enlighten them in matters of health and cleanliness required the exercise of much tact. In the socially unemployed women of any country there was potential wealth, and he drew an amusing picture of a census which should compel women to state exactly what they did or rather what they did not do in return for the cost of their keep. To promote the welfare of children was the most womanly of all work. The work was not charitable but humanitarian; every uncared-for child sat in judgment on some woman. The old law that children should respect their parents ought to be changed to a law that parents should respect the child. The health of the child depended greatly upon the influence of the nurse and the mother. In school life it was important that proper health instruction should be given to children, for early impressions influenced greatly the later adult life. In the industrial period, between the ages of 14 to 18, the report of the Conference recommended that no child should be allowed to enter upon any work without first being examined as to its ability to do the work; and secondly, that no child should be allowed to perform any kind of work which would impair its growth. The nineteenth-century peoples had paid too high a price for the progress they had made, and it behoved every woman to sally forth and remedy the evils. Perhaps the greatest Red Cross task would be that of education, a task for which literature, lectureships, health libraries, and demonstration museums would be required, principally in those unfortunate countries which lagged in the rear of civilisation in all matters connected with hygiene, sanitation, and clean housing.

Coördination of the Work of Separate Societies.

Sir Arthur Stanley, who presided, said that the ideas set out by Professor Roget were already beginning to be realised in this country. The child-welfare question was fairly advanced, owing in a great measure to the help of the Government, though much credit was also due to voluntary effort. About eight or ten years ago, when there were no voluntary infant-welfare centres, the infantile mortality was something like 130 or 150 per 1000. Now, however, when there were a very large number of voluntary centres (though not nearly enough) the mortality figures had fallen to something like 8 per 1000. During the last year or two the Red Cross had been engaged in trying to coördinate the work already being done by separate societies, and a Central Council for Child Welfare had been formed. This Council had almost succeeded in the task of coördinating 13 or 14 different societies. The Central Council would in future, he hoped, be the central coördinating authority working through the different societies and preventing overlapping and waste. The child-welfare unit mentioned by Professor Roget would be an interesting experiment to watch. Referring to the appalling child mortality in Egypt when Lord Kitchener first went there as High Commissioner, Sir Arthur Stanley told how the mortality had been remarkably reduced by the institution of a law which punished the father instead of the mother if a child died from preventable causes. With regard to nursing, its status would have to be improved, and much had already been done by the founding of the College of Nursing. Professor Roget had clearly pointed out the ideals that should be aimed at and what the Red Cross could do in times of peace. That work could be summed up in the one word Prevention. Much was being said of the shortage of beds in hospitals, but instead of building more hospitals and getting more beds, in these expensive days of building it would surely be much better to prevent people coming into the hospitals at all. An enormous amount of work could be done by prevention, and for that the great weapon was obviously education.

MUNICIPAL GOVERNMENT AND PUBLIC HEALTH IN BENGAL, 1918-19.

THE development of a local self-governing faculty in a country such as India, whose inhabitants are of many different races, languages, and faiths, presents numerous problems the satisfactory solution of which must require time. In the province, or presidency (as it is still called), of Bengal there are 115 municipalities, with a total of 317,117 ratepayers, a little over 16 per cent. of the population that resides within municipal limits. The total expenditure in the financial year, 1918-19, amounted to Rs.60,58,439 (£403,896), and the average amount per head was Rs.2.9.1 (say 3*s*. 5*d*.). The amount collected (97·7 per cent.) may be considered to be satisfactory. The aggregate expenditure rose from Rs.66,74,302 to Rs.69,67,662, the principal increase being under the head of "Public Health and Convenience," which may also be said to be in the right direction. Mr. L. S. S. O'Malley, Secretary to Government, who signs the resolution on the

working of the municipalities in Bengal, alludes to the increasing interest shown by most of them in public health administration; in many cases insanitary tanks and ditches were filled up or cleared, jungle and noxious vegetation removed; and at Panihati three antimalarial coöperative societies were formed to carry out this kind of work. Lantern lectures on hygiene and public health have been given by many health officers and quinine distributed free to school boys and others during the malarial season. An important movement was initiated by the firms owning mills on the east bank of the Hooghly; they decided to contribute at the rate of Rs.100 per loom in the jute mills, and proportionately according to the number of hands employed in the paper mills, towards sanitary improvement schemes prepared by the sanitary engineers of the respective municipalities; nearly 19 lakhs of rupees have already been deposited for this purpose. They make the reasonable stipulation that the schemes should be approved by them and the Government is expected to contribute. It is stated that "there is a reiterated and general complaint of the inadequacy of municipal funds to maintain any high standard of administration, combined with a general disinclination on the part of municipal boards to raise funds for the purpose." One of the great needs is an "awakening of public spirit among the ratepayers, so as to enforce the responsibility of the Municipal Commissioners for feeble or bad administration." In one case the municipality pleaded inability to remove defects, "as the irregularities extended over several years, and some of the registers and papers had been eaten by white ants." Unfortunately, in many cases there is still a failure on the part of the municipal authorities to remedy defects relating to the public health, even when pointed out; in some instances administration had to be taken over by local officers of the Government in consequence of municipal inactivity or negligence. In other cases, as in the Dacca Division, the public and the Municipal Commissioners are taking an increased interest in municipal work. In Chittagong Division an epidemic of cholera broke out at Brahmanbaria, ascribed to want of a good drinking-water supply; a water-works scheme was prepared in 1915, but is still "apparently pending with the municipal board." Noakhali suffered from the erosion of the sea, which, if continued, may cause its disappearance; "in the meantime the destruction of property is seriously diminishing its income." Since there can be doubt as to the intelligence of the inhabitants of this part of India, it is to be hoped that their leaders will devote more of their attention to economic questions of importance, such as those referred to.

COMBINED INSPECTION AND INSTRUCTION.

YEARS ago, when a young and growing city, Winnipeg determined that its milk should be clean. Also it required more milk, much more milk, consequently many dairy farmers came to settle near it. But some of these were ignorant and had small capital, and their premises were unsatisfactory. Still it was important not to close their farms but to get their milk and see it was made clean. Mr. P. B. Tustin, lately on the Canadian Food Board, and chief dairy inspector of Winnipeg, and now working as educational adviser to United Dairies, Ltd., in this country, has told the Royal Sanitary Institute,[1] of which he is a member, how it was done. A new dairy farmer applied for a licence to sell milk. His premises were at once inspected, and if they were in line with the regulations he got his licence. If his premises were not good he was not blankly refused, but the defects were pointed out, and he was told what alterations were essential, and what improvements might be postponed for a little. If he would undertake that those considered essential should be done at once, he was given a three months' permit, for he could with these alterations supply decent milk and make a little money towards the expenses which were ahead. Once the farmer had got started, the inspector would come down in his car occasionally, at slack times, and take him round to see a really good dairy with labour-saving devices, and impress on him their economic advantage. At the end of the three months the farmer would be keen to make improvements, and the inspector would advise him, perhaps get him materials cheap from the city, which well knew an extra dairyman selling clean milk was an asset to the citizens. By and by the farmer would feel he must rebuild and again the inspector would give him advice and help; the relations of farmer and inspector were most cordial and the milk-supply improved accordingly. The inspectors were taught about the breeding and feeding of cattle, and passed on this knowledge to the farmers, who, as they gained advantage, became the more friendly. "I found that in almost every instance the visits of my inspectors were welcomed," says Mr. Tustin, who thinks dairy instructors are more needed than dairy inspectors. The farmers will do anything for inspectors who thoroughly know their business, and that helps production, which is so necessary. The whole article should be read, and especially by people in official positions, for it shows how much can be done by officials who have foresight and sympathy to further the true purpose for which their department was established. In our experience sanitary inspectors are particularly friendly and are welcomed by the people. If more officials did their work in this spirit there would be fewer complaints of bureaucracy.

[1] Journal of the Royal Sanitary Institute, September, p. 58.

PRINTERS ADOPT A LONDON HOSPITAL.

THE modern conception of effective philanthropy does not imply promiscuous contributions to scattered charities, but a measure of sustained interest in certain ideas or schemes, and the acceptance of some responsibility for their future development. A state of dependence on irregular doles is now recognised as unsatisfactory, if not demoralising, to the recipients, be they human beings or institutions, however gratifying to the benefactor. This change in our national attitude, involving continually increasing demands on the ratepayer, is the outcome of a growing social sense, which may, indeed, be developing too rapidly in our impoverished state. However, not only the rulers but the people are becoming keen to see the need for reforms, and impatient to effect them. The recent resolution of 1200 members of the amalgamated chapels of Messrs. W. H. Smith and Sons to contribute 2*d.* a week out of their wages to the support of King's College Hospital is a sign of this growing sense of collective responsibility. We wish that it may extend to all printers and thence to all trade federations. We live in an age of adoption. The adoption of a soldier by a marraine, of a devastated French town by a prosperous English one, are examples, while the adoption of orphaned babies by the childless has never been more in fashion. In the foregoing cases there is no special reason for the particular responsibility assumed, no ties of blood or business connexion. It is this detachment, this deliberate self-imposed burden, associated with but little of the gratification afforded by a single bountiful act, that is a new and salutary factor in present-day adoption. The adoption of other of the great hospitals by railway men, plumbers, or carpenters may perhaps follow. We commend this action of the printers to the consideration of those who fear that the whole cost of running the voluntary hospitals may fall upon the local rates.

WANTED: RUSSIAN PARENTS.

THE League of Red Cross Societies has issued in English, French, and German an appeal containing names of more than 800 Russian children sent for safety from Petrograd and Moscow early in 1918, and now under the care of the American Red Cross, which organisation has brought them by sea to Bordeaux. Every effort is being made to discover the parents and restore the children to them. The following particulars concern the children of members of the medical and dental professions:—

Name.	Age.	Parent's name and address.	Parent's occupation
Boys.			
Venigradoff, Anatoly.	13	Pavel (Kuznechny, No. 13, appt.)	Surgeon.
Deleuroff, Alex.	18	Pavel (Bolshoy Ohtensky, per. No. 4).	Doctor.
Komkin, Ivan.	14	Ivan (Saharny per. No. 12/27, appt. 31).	"
" Vasily.	11		
Girls.			
Blomash, Liuba.	—	Moysey Jacob (Chernishow st., No. 28, lod. 51).	Physician.
Vasilieva, Valentina.	15	Jacob Lazar (Rojdestvenskaya, 8th st., No. 25, lod. 2).	Dentist.
Guinsberg, Raisa.	15	Moysey David (Vasilievsky Ostrov, Kadetdkaya st., No. 23, lod. 2).	"
Kokorovskaya, Evgenia.	17	Antonina Mikhailovna (8 Kavalergardskaya, lod. 6).	Physician.
Kokorovskaya, Ksenia.	15	Antonina Mikhailovna (2 Kasanskaya, lod. 23)	—
Koposova, Evgenia.	18	Klavdia Dmitrievna (10 Torgovaya, lod. 31).	"
Koposova, Olga.	16		"

These children, sent to colonies in the Ural Mountains, were in many cases deserted by their teachers when the Government failed to forward the sums paid by their parents for upkeep. When the local government collected the children for the American Red Cross in the autumn of 1918 many were found running naked in the woods, living on roots and berries and entirely without guidance or supervision. The defeat of Koltchak's armies rendered necessary their transportation to Vladivostok, and later the political situation forced their further removal from that city.